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Slutrapport over GEP forsøg 18-425, 18-427-1, 18-427-2, 18-427-3, 18-429, 18-430, 18-441 og 18-442

UKRUDTSBEKÆMPELSE I HAVEFRØ
- Herbicidafprøvning ved AU Flakkebjerg 2018

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December 2018

Rapport til Frøafgiftsfonden Danmark

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Titelblad

Titel:	Ukrudtsbekæmpelse i havefrø – herbicidafprøvning ved AU Flakkebjerg 2018
Forsøgs nr:	18-425, 18-427-1, 18-427-2, 18-427-3, 18-429, 18-430, 18-441 og 18-442.
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Forsøgsleder:	Peter Hartvig
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Det bekræftes hermed, at forsøg denne forsøgsserie er gennemført i overensstemmelse med principperne for GEP:

20. december 2018 _____
Dato Peter Hartvig

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Samlet konklusion

Ukrudtsbekæmpelse i spinat til frø - bladstrategier samt kombination af nye jordmidler

Der er i 2018 udført 3 markforsøg med ukrudtsbekæmpelse i spinat til frø. Generelt har der været stor overensstemmelse mellem forsøgsplaner i alle forsøg, dog med enkelte forskelle. Overordnet har alle forsøg været strategiforsøg, hvor der er udbragt et eller flere jordmidler før fremspiring af spinat. Sidenhen er der fulgt op efter fremspiring af spinat og ukrudt med et antal bladsprøjtninger. Vejrforhold i forsøgsperioden var meget varmt og med flere soltimer end normalt, derfor ses der ikke så store skade, som man kunne forvente.

I alt 6 forskellige ukrudtsarter blev registreret i de fire forsøg: CHEAL (*Chenopodium album*; da: hvidmelet gåsefod), POLCO (*Fallopia convolvulus*; da: snerlepileurt), VIOAR (*Viola arvensis*; da: agerstedmoder), VERSS (*Veronica sp*.; da: ærenpris), POAAN (*Poa annua*, da: enårig rapgræs), GALAP (*Galium aparine*, da: burresnerre), samt der blev registreret en bedømmelse på andet tokimbladet ukrudt (BBBBB).

Centium CS eller Command CS (parallel produkter med samme aktivstof) har været standard som jordmiddel i alle forsøgsled, dog blev nogle forsøgsled suppleret med Proman, DFF eller Venzar i tankblanding, som var besluttet på baggrund af tidligere udtagne jordprøver. Jordprøverne har været udlagt til spiring af ukrudt, og har dermed givet en tydelig indikation af hvilke ukrudtsfrø, der måte være dominerende på de enkelte lokaliteter. Alle led blev fulgt op med bladsprøjtninger med forskellige kombinationer af Betanal, Centium, Nortron, Lentagran og Safari. Forsøg 18-427-2 og 18-427-3 havde et led hver med Safari, som desværre blev udbragt med 10 gange for højt dosering end tiltænkt, derfor blev der besluttet at fjerne dette led fra den statistiske analyse af effekt og skade, og er ikke sammenlignet med andre led her i konklusionen, dog effekt og skaderesultater kan findes i AOV means table i rapporten.

Forsøg 18-427-1 blev udført i omegenen af Flakkebjerg og havde en moderat ukrudtsbestand af CHEAL, POAAN og POLCO. Alle testede strategier viste sig til at have god effekt overfor CHEAL, POAAN og POLCO ukrudtsarterne, dog har led 5 med Venzar og led 6 med Proman (begge med kun 1 gang Betanal bladsprøjtning efter behov) virket lidt dårligere overfor POLCO, til gengæld synes begge midler at have virket lidt bedre overfor POAAN. Led 7 med Proman og Nortron og led 8 med Proman og Lentagran synes at have virket bedst på alle bedømte ukrudtsarter, men de har også skadet spinat i meget alvorlig grad.

Forsøg 18-427-2 blev udført i Dalmose, ca. 4,5 km sydøst for Flakkebjerg og havde en lav ukrudtsbestand af GALAP, POAAN og VIOAR. Alle testede strategier har generelt virket effektivt overfor alle bedømte ukrudtsarterne og ingen signifikant forskel i effekt overfor alle ukrudtsarter. Led 7 med Proman og Nortron har vist nogen skade på spinat, men det har ikke været så alvorligt, som i forsøg 18-427-1. Dette forsøg blev vurderet som egnet til høst, men udbytteresultater har ikke vist nogen signifikant forskel mellem leddene.

Forsøg 18-427-3 blev udført i Fyrendal, ca. 11 km sydøst for Flakkebjerg og havde en moderat ukrudtsbestand af CHEAL, VERSS, VIOAR og POLCO. Alle testede strategier har generelt virket noderat til rimeligoverfor alle bedømte ukrudtsarter. Led 3 med Betanal og Centium har vist lavest effekt overfor CHEAL (71,3% effekt). Led 2 med Betanal og delvist led 5 med DFF og Betanal med har vist lavest effekt overfor VERSS og VIOAR. Led 4 med Centium og Betanal udbragt 6 gange synes at klare sig bedst overfor VERSS og VIOAR. Led 7 med Lentagran har også vist høj effekt overfor alle ukrudtsarter, men har skadet spinat i meget alvorlig grad.

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Tolerance screening i spinat

Der blev udført 2 forsøg med tolerancescreening i spinat af i alt 16 forskellige herbicider. Vejrforhold i forsøgsperioden var meget varmt og med flere soltimer end normalt, derfor ses der ikke så store skade, som man kunne forvente. Yderligere blev der også observeret, at densitet og vitalitet (eng: crop vigor) i spinat var svingende mellem parcellerne, muligvis på grund af tørke og forskel i jordtype på forsøgsarealet, og det har påvirket skadebedømmelserne, især ved de to sidste bedømmelser.

Forsøg 18-430. Midlerne, som blev anvendt lige efter såning har generelt ikke skadet spinaten. Ved den sidste bedømmelse blev der observeret nogen skade i alle led med behandling A (led 2-12;17,5 – 38,8% skade), men er ikke signifikant forskelig fra ubehandlet (0%), derfor vurderes det som ubetydelige skader. Forsøget er blevet vandet, men i fremspiringsperioden var det generelt tørt, og dette kan have været medvirkende til det lave skadesniveau af jordmidlerne.

Skadesbedømmelserne af led, som blev behandlet ved behandling B (led 13-36) har vist klare forskelle mellem skader af midlerne. Midlerne Lentagran WP (led 14), Belkar (led 20), MaisTer (led 22-23) har vist alvorlige skader på spinaten ved de sidste 2 bedømmelser 26 og 63 DA-B (53,8-90%).

Midlerne Pixxaro, DFF, Fenix, Boxer+Fenix, Proman, og Korveta har vist ret alvorlige skader ved tidlige bedømmelser i forsøgsperioden, men spinaten kunne generelt anses for at have kommet sig efter behandlingerne med herbiciderne.

Midlerne Tanaris, Nortron og Cryptic synes at skade mindst blandt midlerne behandlet ved B sprøjtningen, og kan anses for at have potentiale i fremtidig ukrudtsbekæmpelse i spinat. Der er dog behov for flere forsøg til yderligere afklaring af dette.

Forsøg 18-425 blev udført som følge af den forkert anvendte dosering af Safari i strategiforsøgene**.** Der blev observeret svag dosis-respons, hvor den laveste dosering af Safari har forårsaget mindst skade på spinat, hvor den højeste dosering resulterede i de største skader. Skader af den laveste dosering af Safari (0,0025 kg/ha + Renol, led 2) kan anses for at være acceptable, sammen med led 7 (0,01 kg/ha Safari uden Renol). Alle andre led har forårsaget ret alvorlige skader på spinat, og anses derfor ikke at være egnet i ukrudtsstrategier i spinat. Split behandling har hellere ikke vist sig til at være en mulighed.

Ukrudtsbekæmpelse i spinat og pak choi til frø – afprøvning af Devrinol og Centium kombinationer

Forsøget er udført i Flakkebjerg med to afgrøder: spinat og pak choi sået ved siden af hindanden. Forsøget blev sprøjtet og nedharvet med A behandling lige inden såning den 20. april. Der blev sået samme dag, og B behandling blev udført umiddelbart efter såning. Vejrforhold i forsøgsperioden var meget varmt og med flere soltimer end normalt, derfor ses der ikke så store skade, som man kunne forvente.

Tre forskellige ukrudtsarter blev bedømt ved effektregistrering: CAPBP (*Capsella bursa-pastoris*; da: hyrdetaske), POLCO (*Fallopia convolvulus*; da: snerlepileurt), VIOAR (*Viola arvensis*; da: agerstedmoder) samt en bedømmelse på andet tokimbladet ukrudt (BBBBB). Alle behandlinger synes til at vise ret god effekt overfor POLCO, moderat effekt overfor BBBBB og lav effekt overfor VIOAR. Led 2 og 5 viste lav effekt overfor CAPBP (33,8-41,3% effekt), mens alle led med Centium ved behandling B viste god effekt (80-90%). Devrinolbehandlingen inden såning synes at have lav effekt overfor CAPBP, og Centiumhar ikke forbedret effekten overfor denne ukrudtsart.

Skadesbedømmelser viste næsten ingen, eller ubetydelig skade på både pak choi og spinat. Devrinol og Centium kan derfor betragtes som sikre midler overfor spinat og pak choi i dette forsøg.

Ukrudtsbekæmpelse i pak choi til frø – afprøvning af strategier

Forsøget blev udført i Høve, ca. 5 km syd for Flakkebjerg. Vejrforhold i forsøgsperioden var meget varmt og med flere soltimer end normalt, derfor ses der ikke så store skade, som man kunne forvente.

Fire forskellige ukrudtsarter blev bedømt ved effektregistrering: CHEAL (*Chenopodium album*; da: hvidmelet gåsefod), THLAR (*Thlaspi arvense*; da: almindelig pengeurt), TRFSS (*Trifolium sp*.; da: kløver), POLCO (*Fallopia convolvulus*; da: snerlepileurt) og en bedømmelse på andet tokimbladet ukrudt (BBBBB). Der var høj ukrudtsdensitet af CHEAL og TRFSS, mens der var moderat ukrudtsdensitet af THLAR og POLCO.

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Command har været standard som jordmiddel i alle forsøgsled. Led 2 viste lavest effekt overfor CHEAL, TRFSS, POLCO og BBBBB (32,5-57,5%, signifikant lavere end alle andre led) som viser, at Command CS med to efterfølgende Boxer sprøjtninger ikke har været tilstrækkelige. Alle andre led har vist god effekt overfor disse ukrudtsarter. Led 3 med 2 gang Boxer og Galera viste lavest effekt overfor THLAR (86,3%), mens led 8 med 2 gang Boxer samt Belkar viste højest effekt (94,8%, signifikant forskel mellem de to led).

Alle led har vist ret store skade på pak choi ved C og D sprøjtningerne, men pak choi kunne komme sig, og observerede skader på pak choi kunne anses for at være acceptable.

Ukrudtsbekæmpelse i karse til frø – tolerance afprøvning af Stomp CS og Galera

Forsøget blev udført i Flakkebjerg alene med henblik på tolerance i karse til frø. For at undgå afgrødepåvirkning af eventuelt ukrudt er hele arealet dampbehandlet inden såning. Forsøget blev sprøjtet lige efter såning 24 april (behandling A), 16 dage senere (behandling B), og 5 dage senere (behandling C). Led 4 med Stomp og Boxer blev tydeligvis skadet af behandlingen lige efter såning, som kan ses i alle skades bedømmelserne. Boxer kan sikkert identificeres, som årsag til de observerede skader på karse. Led 4 ser dog ud til at kunne komme sig, og var også i stand til at sætte frø. Alle andre led har ikke vist signifikante skader ved nogen af bedømmelserne. Vejrforhold i forsøgsperioden var meget varmt og med flere soltimer end normalt, derfor ses der ikke så store skade, som man kunne forvente.

Høstanalyse har ikke vist signifikante forskelle mellem behandlingerne. Høstudbyttet i led 4 med Boxer har dog tydeligvis været påvirket, og er markant lavere end ubehandlet (36% af ubehandlet). Led 3 med 2,0 L/ha Stomp, behandling A, og led 8 med 0,125 L/ha Galera ved B og C behandlingerne synes dog også at have påvirket udbytte (66,4-68,7% af ubehandlet).

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff
Discipline:H herbicide
Trial Status:F one-year/final **Trial Reliability:**good
Initiation Date:20-04-2018

Trial Location

City: Flakkebjerg **Latitude of LL Corner °:**55,299667 N
State/Prov.: Slagelse **Longitude of LL Corner °:**11,39781 E
Postal Code:4200
Country:DNK Denmark
Conducted Under GEP: Yes

Objectives:

Hovedformål: At afprøve bladstrategier samt kombinationer af nye jordmidler til ukrudtsbekæmpelse i spinat til frø.
Delformål:
- At afprøve Centium CS 36 (Command) som blandingspartner til bladsprøjtninger med Betanal (led 2 og 3)
- At sammenligne ovenstående tankblanding, når Betanl udbringes ved henholdsvis 3 eller 6 sprøjtninger (led 3 og 4)
- At afprøve nye jordherbicider, udvalgt på baggrund af forudgående undersøgelse af jordens indhold af ukrudt fulgt op af Betanal efter aktuelt behov (led 5 og 6)
- At afprøve nye bladherbicider som alternativ til Betanal (led 7 og 8)

Conclusions:

Forsøget blev udført i Flakkebjerg, ca 2,6 km syd for forskningscentret AU Flakkebjerg. Forsøget blev bedømt for effekt den 4. juni, 17 dage efter G sprøjtning (17 DA-G). Skade på spinat blev bedømt ved E og G sprøjtninger, samt 17 og 31 DA-G. Dette forsøg blev vurderet uegnet til høst, da spinat har tydeligvis været påvirket af ukrudt ved effektbedømmelse.
Tre forskellige ukrudtsarter blev bedømt ved effektregistrering: CHEAL (Chenopodium album; da: hvidmelet gåsefod), POAAN (*Poa annua*, da: enårig rapgræs), POLCO (Fallopia convolvulus; da: snerlepileurt) og en bedømmelse på andet tokimbladet ukrudt (BBBBB). Der var moderat ukrudtsdensitet af alle bedømte ukrudtsarter.
Alle testede strategier har generelt virket effektivt overfor alle bedømte ukrudtsarter. Led 5 og 6 har dog virket lidt dårligere overfor POLCO til gengæld synes de til at have virket lidt bedre overfor POAAN.
Resultater fra skadebedømmelse har vist, at led 7 og 8 har skadet spinat i meget alvorlig grad ved de sidste tre bedømmelser (61,3-87,5% skade). Nortron SC kan identificeres som årsag til skade på spinat i led 7, og Lentagran WP kan identificeres som årsag til skade på spinat i led 8. Behandlingerne i led 6 har også forårsaget ret store skade på spinat ved bedømmelser ved de sidste to skadebedømmelser (38,8-40%), og vurderes til at være alvorlige. Behandlingerne i de andre led har også vist ret store skade på spinat, især ved behandlingerne E og G, men spinat synes til at komme sig ved de sidste to skadesbedømmelser.

Personnel

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Cooperator/Landowner

Country:DNK Denmark

Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale:BVNH **Planting Date:**20-04-2018
Planting Method:DRILLE drilled
Row Spacing, Unit:50 cm

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Description

Pest 1 Type: W **Code:**POLCO Fallopia convolvulus
Common Name:wild buckwheat

Pest 2 Type: W **Code:**CHEAL Chenopodium album
Common Name:common lambsquarters

Pest 3 Type: W **Code:**POAAN Poa annua
Common Name: Annual bluegrass

Pest 4 Type: W **Code:**BBBBB Broad-leaved plants
Common Name: Broad-leaved plants

Site and Design

Plot Width, Unit:2,5 m
Plot Length, Unit:6 m
Plot Area, Unit:15 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand:75 **% OM:**2,2 **Texture:**FSL fine sandy loam
% Silt:15 **pH:**6,7 **Soil Name:**Fine Clay Loam
% Clay:10

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 2,6 km

Application Description

	A	B	C	D	E	F	G
Application Date:	23-04-2018	26-04-2018	02-05-2018	07-05-2018	10-05-2018	14-05-2018	18-05-2018
Time of Day:	10:00	12:30	11:30	10:00	9:00	9:20	9:15
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PREMCR	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP
Application Placement:	PLOT	PLOT	PLOT	PLOT	PLOT	PLOT	PLOT
Applied By:	ahk	ahk	ahk	ahk	moa	moa	moa
Air Temperature, Unit:	14 C	13,8 C	11,6 C	21,6 C	19,5 C	20,5 C	18,6 C
% Relative Humidity:	74	73	62,2	48,7	60	54	68
Wind Velocity, Unit:	4,5 MPS	5 MPS	3,5 MPS	0 MPS	1,5 MPS	2,3 MPS	0,1 MPS
Wind Direction:	SW	SW	SSE		E	E	SW
Dew Presence (Y/N):	N no	N no	N no	N no	N no	N no	N no
Soil Temperature, Unit:	12,5 C	11,5 C	10,2 C	14,3 C	15,5 C	16,1 C	16,8 C
Soil Moisture:	VERDRY	WET	NORMAL	DRY	NORMAL	DRY	VERDRY
% Cloud Cover:	60	90	0	0	5	0	10
Next Rain Occurred On:	24-04-2018	27-04-2018	05-05-2018	10-05-2018	11-05-2018	26-05-2018	26-05-2018

Crop Stage At Each Application

	A	B	C	D	E	F	G
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:	05		10	10	12		14
Stage Minimum, Percent:					11		
Stage Maximum, Percent:				12	13		16

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Stage At Each Application

	A	B	C	D	E	F	G
Pest 1 Code, Type, Scale:	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W
Stage Majority, Percent:			10	10	11		
Stage Minimum, Percent:							11
Stage Maximum, Percent:				11			14
Density, Unit:			3 PLA/m2	3 PLA/m2	1 PLA/m2		3 PLA/m2
Pest 2 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W
Stage Minimum, Percent:							10
Stage Maximum, Percent:							14
Density, Unit:							1 PLA/m2
Pest 3 Code, Type, Scale:	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W
Stage Majority, Percent:							13
Density, Unit:							1 PLA/m2
Pest 4 Code, Type, Scale:	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W
Density, Unit:							3 PLA/m2

Application Equipment

	A	B	C	D	E	F	G
Appl. Equipment:	Green spraye	Green spraye	Black spraye	Black spraye	Green spraye	Green spraye	Black spraye
Equipment Type:	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC
Operating Pressure, Unit:	2.1 BAR	2.1 BAR	1.9 BAR	1.9 BAR	2.1 BAR	2.1 BAR	1.9 BAR
Nozzle Type:	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Nozzles/Row:	4	4	5	5	4	4	5
Boom Length, Unit:	2 m	2 m	2.5 m	2.5 m	2 m	2 m	2.5 m
Boom Height, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Type	Treatment Name	Form Type	Description	Rate	Rate Unit	Appl Code	Appl Description
1	CHK	Untreated Check		not treated				
2	HERB	Centium 36 CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
3	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Centium 36 CS	CS		0,05	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	6-8 dage senere
4	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,75	l/ha	B	Beg. fremspiring
	HERB	Centium 36 CS	CS		0,05	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,75	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	D	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	F	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	G	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	3-4 dage senere
5	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	Venzar 500 SC	SC		1,0	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,5	l/ha	G	6-8 dage senere
6	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	Proman	SC		0,75	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,5	l/ha	G	6-8 dage senere
7	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Nortron SC	SC		0,14	l/ha	E	6-8 dage senere
	HERB	Centium 36 CS	SC		0,05	l/ha	E	6-8 dage senere
	HERB	Nortron SC	SC		0,14	l/ha	G	6-8 dage senere
	HERB	Centium 36 CS	SC		0,05	l/ha	G	6-8 dage senere
8	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Lentagran WP	WP		0,5	l/ha	E	6-8 dage senere
	HERB	Lentagran WP	WP		0,5	l/ha	G	6-8 dage senere

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2,5 meters, Treated 'Plot' experimental unit size Length: 6 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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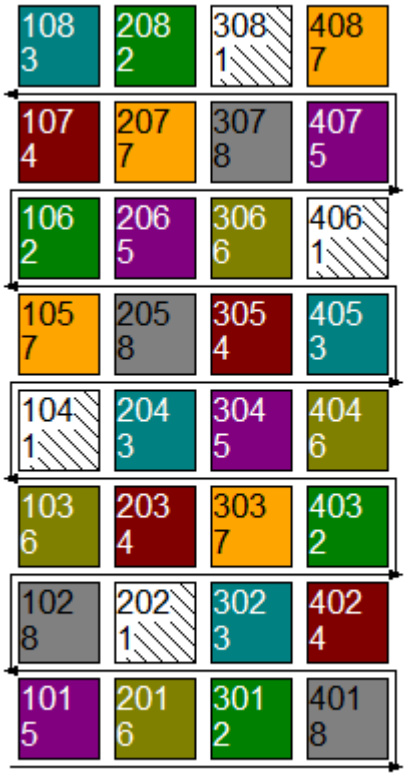
Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		



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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed	W Weed			
Pest Code	POLCO	CHEAL	POAAN	BBBBB			
Pest Scientific Name	Fallopia convo>	Chenopodium al>	Poa annua	Broad-leaved p>			
Pest Name	Black bindweed	Common lambsqu>	Annual meadow >	Broad-leaved p>			
Crop Code	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description				Andet 2kimblad>			
Part Rated	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C
Rating Date	04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018	04-06-2018
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	PHYGEN
Rating Unit	percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1	1	1
Crop Stage Majority	53	53	53	53	12	14-16	53
Crop Stage Minimum/Maximum					11 13		
Pest Stage Majority	55	55	29				
Pest Density, Unit	10 PLA/m2	6 PLA/m2	6 PLA/m2	9,5 PLA/m2			
Assessed By	AHK	AHK	AHK	AHK	LMA	LMA	AHK
Days After First/Last Applic.	42 17	42 17	42 17	42 17	17 3	25 4	42 17
Trt-Eval Interval	17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G	17 DA-G
ARM Action Codes	EC	EC	EC	EC			
Trt Treatment Rate Appl							
No. Name Rate Unit Code	5	8	11	14	1	2	15
1Untreated Check	0,0	0,0	0,0	0,0	0,0b	0,0d	0,0d
2Centium 36 CS 0,2l/ha A	80,0bc	82,5a	83,8a	61,3b	16,3ab	35,0bc	7,5d
Betanal 1,5l/ha C							
Betanal 1,0l/ha E							
Betanal 1,0l/ha G							
3Centium 36 CS 0,1l/ha A	86,3ab	85,0a	83,8a	60,0b	10,0ab	32,5bc	13,8d
Betanal 1,5l/ha C							
Centium 36 CS 0,05l/ha C							
Betanal 1,0l/ha E							
Centium 36 CS 0,05l/ha E							
Betanal 1,0l/ha G							
Centium 36 CS 0,05l/ha G							
4Centium 36 CS 0,1l/ha A	82,5abc	86,3a	83,8a	61,3b	25,0ab	37,5bc	7,5d
Betanal 0,75l/ha B							
Centium 36 CS 0,05l/ha C							
Betanal 0,75l/ha C							
Betanal 0,5l/ha D							
Centium 36 CS 0,05l/ha E							
Betanal 0,5l/ha E							
Betanal 0,5l/ha F							
Betanal 0,5l/ha G							
Centium 36 CS 0,05l/ha G							
5Command CS 0,15l/ha A	75,0c	82,5a	95,0a	72,5ab	12,5ab	16,3c	5,0d
Venzar 500 SC 1,0l/ha A							
Betanal 0,5l/ha G							
6Command CS 0,15l/ha A	77,5bc	80,0a	93,8a	72,5ab	25,0ab	45,0b	40,0c
Proman 0,75l/ha A							
Betanal 0,5l/ha G							
7Centium 36 CS 0,1l/ha A	90,0a	90,5a	94,3a	86,3a	42,5a	67,5a	68,8b
Proman 1l/ha A							
Betanal 1,5l/ha C							
Nortron SC 0,14l/ha E							
Centium 36 CS 0,05l/ha E							
Nortron SC 0,14l/ha G							
Centium 36 CS 0,05l/ha G							

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed	W Weed			
Pest Code	POLCO	CHEAL	POAAN	BBBBB			
Pest Scientific Name	Fallopia convo>	Chenopodium al>	Poa annua	Broad-leaved p>			
Pest Name	Black bindweed	Common lambsqu>	Annual meadow >	Broad-leaved p>			
Crop Code	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description				Andet 2kimblad>			
Part Rated	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C
Rating Date	04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018	04-06-2018
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	PHYGEN
Rating Unit	percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1	1	1
Crop Stage Majority	53	53	53	53	12	14-16	53
Crop Stage Minimum/Maximum					11 13		
Pest Stage Majority	55	55	29				
Pest Density, Unit	10 PLA/m2	6 PLA/m2	6 PLA/m2	9,5 PLA/m2			
Assessed By	AHK	AHK	AHK	AHK	LMA	LMA	AHK
Days After First/Last Applic.	42 17	42 17	42 17	42 17	17 3	25 4	42 17
Trt-Eval Interval	17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G	17 DA-G
ARM Action Codes	EC	EC	EC	EC			
Trt Treatment Rate Appl							
No. Name Rate Unit Code	5	8	11	14	1	2	15
8Centium 36 CS 0,1l/ha A	91,3a	93,8a	96,3a	87,5a	43,8a	82,5a	87,5a
Proman 1l/ha A							
Betanal 1,5l/ha C							
Lentagran WP 0,5l/ha E							
Lentagran WP 0,5l/ha G							
LSD P=.05	7,41	14,03	8,75	15,00	22,28	16,10	17,59
Standard Deviation	4,99	9,44	5,89	10,10	15,15	10,95	11,96
CV	6,0	11,01	6,54	14,1	69,25	27,69	41,62
Levene's F	0,31	0,778	3,277	0,82	1,519	2,159	2,218
Levene's Prob(F)	0,925	0,596	0,02*	0,567	0,208	0,076	0,069
Skewness	-0,3468	-0,5344	-1,126*	-0,357	1,4197*	0,4064	0,9405*
Kurtosis	-0,4694	-0,2081	0,3337	-1,1625	2,1685*	-0,5097	-0,6731
Replicate F	3,873	0,210	2,365	1,620	2,569	3,206	0,830
Replicate Prob(F)	0,0268	0,8882	0,1050	0,2199	0,0816	0,0441	0,4925
Treatment F	6,179	1,059	4,100	5,346	4,140	23,068	30,723
Treatment Prob(F)	0,0012	0,4221	0,0091	0,0025	0,0052	0,0001	0,0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Code				SPQOL
BBCH Scale				BVNH
Crop Name				Spinach
Description				
Part Rated				PLANT C
Rating Date				18-06-2018
Rating Type				PHYGEN
Rating Unit				percent
Sample Size, Unit				1 PLOT
Collection Basis, Unit				1 PLOT
Number of Subsamples				1
Crop Stage Majority				71
Crop Stage Minimum/Maximum				
Pest Stage Majority				
Pest Density, Unit				
Assessed By				LMA
Days After First/Last Applic.				56 31
Trt-Eval Interval				31 DA-G
ARM Action Codes				
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	16
1	Untreated Check				0,0c
2	Centium 36 CS	0,2	l/ha	A	15,0bc
	Betanal	1,5	l/ha	C	
	Betanal	1,0	l/ha	E	
	Betanal	1,0	l/ha	G	
3	Centium 36 CS	0,1	l/ha	A	15,0bc
	Betanal	1,5	l/ha	C	
	Centium 36 CS	0,05	l/ha	C	
	Betanal	1,0	l/ha	E	
	Centium 36 CS	0,05	l/ha	E	
	Betanal	1,0	l/ha	G	
	Centium 36 CS	0,05	l/ha	G	
4	Centium 36 CS	0,1	l/ha	A	18,8bc
	Betanal	0,75	l/ha	B	
	Centium 36 CS	0,05	l/ha	C	
	Betanal	0,75	l/ha	C	
	Betanal	0,5	l/ha	D	
	Centium 36 CS	0,05	l/ha	E	
	Betanal	0,5	l/ha	E	
	Betanal	0,5	l/ha	F	
	Betanal	0,5	l/ha	G	
	Centium 36 CS	0,05	l/ha	G	
5	Command CS	0,15	l/ha	A	7,5c
	Venzar 500 SC	1,0	l/ha	A	
	Betanal	0,5	l/ha	G	
6	Command CS	0,15	l/ha	A	38,8b
	Proman	0,75	l/ha	A	
	Betanal	0,5	l/ha	G	
7	Centium 36 CS	0,1	l/ha	A	61,3a
	Proman	1	l/ha	A	
	Betanal	1,5	l/ha	C	
	Nortron SC	0,14	l/ha	E	
	Centium 36 CS	0,05	l/ha	E	
	Nortron SC	0,14	l/ha	G	
	Centium 36 CS	0,05	l/ha	G	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Pest Type				
Pest Code				
Pest Scientific Name				
Pest Name				
Crop Code				SPQOL
BBCH Scale				BVNH
Crop Name				Spinach
Description				
Part Rated				PLANT C
Rating Date				18-06-2018
Rating Type				PHYGEN
Rating Unit				percent
Sample Size, Unit				1 PLOT
Collection Basis, Unit				1 PLOT
Number of Subsamples				1
Crop Stage Majority				71
Crop Stage Minimum/Maximum				
Pest Stage Majority				
Pest Density, Unit				
Assessed By				LMA
Days After First/Last Applic.				56 31
Trt-Eval Interval				31 DA-G
ARM Action Codes				
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	16
8	Centium 36 CS	0,1	l/ha	A	71,3a
	Proman	1	l/ha	A	
	Betanal	1,5	l/ha	C	
	Lentagran WP	0,5	l/ha	E	
	Lentagran WP	0,5	l/ha	G	
LSD P=.05					18,75
Standard Deviation					12,75
CV					44,85
Levene's F					2,16
Levene's Prob(F)					0,075
Skewness					0,6394
Kurtosis					-0,8227
Replicate F					1,812
Replicate Prob(F)					0,1758
Treatment F					16,575
Treatment Prob(F)					0,0001

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
POLCO, Fallopia convolvulus, Black bindweed = IE
CHEAL, Chenopodium album, Common lambsquarters = US
POAAN, Poa annua, Annual meadow grass = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
PLOT = total plot
Crop Stage Majority
53 = 30% of height of the main shoot reached
12 = 2nd true leaf unfolded
71 = First fruits formed
Crop Stage Minimum/Maximum
11 = 1st true leaf unfolded
13 = 3rd true leaf unfolded
Pest Stage Majority
55 = First individual flowers visible (still closed); G_Half of inflorescence emerged (middle of heading)
29 = 9 side shoots visible; G_9 tillers visible

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code			POLCO	POLCO	POLCO	CHEAL	CHEAL	CHEAL	POAAN	
Pest Scientific Name			Fallopia convo>	Fallopia convo>	Fallopia convo>	Chenopodium al>	Chenopodium al>	Chenopodium al>	Poa annua	
Pest Name			Black bindweed	Black bindweed	Black bindweed	Common lambsqu>	Common lambsqu>	Common lambsqu>	Annual meadow >	
Crop Code	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description										
Part Rated	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date	10-05-2018	18-05-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018
Rating Type	PHYGEN	PHYGEN	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA	
Rating Unit	percent	percent	NUMBER	percent	percent	NUMBER	percent	percent	NUMBER	
Sample Size, Unit	1 PLOT	1 PLOT	1 m2	1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 m2	
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	
Number of Subsamples	1	1	1	1	1	1	1	1	1	
Crop Stage Majority	12	14-16	53	53	53	53	53	53	53	
Crop Stage Minimum/Maximum	11 13									
Pest Stage Majority			55	55	55	55	55	55	29	
Pest Density, Unit					10 PLA/m2			6 PLA/m2		
Assessed By	LMA	LMA	AHK	AHK	AHK	AHK	AHK	AHK	AHK	
Days After First/Last Applic.	17 3	25 4	42 17	42 17	42 17	42 17	42 17	42 17	42 17	
Trt-Eval Interval	0 DA-E	0 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	
ARM Action Codes					EC			EC		

Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	1	2	3	4	5	6	7	8	9
1	Untreated Check				104	0,0	0,0	8,0	8,0	0,0	6,0	7,0	0,0	7,0
					202	0,0	0,0	10,0	10,0	0,0	3,0	2,0	0,0	3,0
					308	0,0	0,0	12,0	12,0	0,0	7,0	8,0	0,0	5,0
					406	0,0	0,0	10,0	10,0	0,0	7,0	8,0	0,0	8,0
					Mean =	0,0	0,0	10,0	10,0	0,0	5,8	6,3	0,0	5,8
2	Centium 36 CS	0,2l/ha		A	106	10,0	30,0			75,0			90,0	
	Betanal	1,5l/ha		C	208	0,0	20,0			80,0			90,0	
	Betanal	1,0l/ha		E	301	25,0	40,0			75,0			85,0	
	Betanal	1,0l/ha		G	403	30,0	50,0			90,0			65,0	
					Mean =	16,3	35,0	.	.	80,0	.	.	82,5	.
3	Centium 36 CS	0,1l/ha		A	108	10,0	35,0			90,0			90,0	
	Betanal	1,5l/ha		C	204	10,0	30,0			80,0			80,0	
	Centium 36 CS	0,05l/ha		C	302	10,0	30,0			85,0			80,0	
	Betanal	1,0l/ha		E	405	10,0	35,0			90,0			90,0	
	Centium 36 CS	0,05l/ha		E										
	Betanal	1,0l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	10,0	32,5	.	.	86,3	.	.	85,0	.
4	Centium 36 CS	0,1l/ha		A	107	30,0	40,0			75,0			90,0	
	Betanal	0,75l/ha		B	203	10,0	35,0			85,0			80,0	
	Centium 36 CS	0,05l/ha		C	305	30,0	30,0			80,0			90,0	
	Betanal	0,75l/ha		C	402	30,0	45,0			90,0			85,0	
	Betanal	0,5l/ha		D										
	Centium 36 CS	0,05l/ha		E										
	Betanal	0,5l/ha		E										
	Betanal	0,5l/ha		F										
	Betanal	0,5l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	25,0	37,5	.	.	82,5	.	.	86,3	.
5	Command CS	0,15l/ha		A	101	20,0	15,0			80,0			70,0	
	Venzar 500 SC	1,0l/ha		A	206	0,0	0,0			75,0			100,0	
	Betanal	0,5l/ha		G	304	20,0	25,0			65,0			75,0	
					407	10,0	25,0			80,0			85,0	
					Mean =	12,5	16,3	.	.	75,0	.	.	82,5	.
6	Command CS	0,15l/ha		A	103	20,0	40,0			85,0			80,0	
	Proman	0,75l/ha		A	201	20,0	40,0			70,0			75,0	
	Betanal	0,5l/ha		G	306	10,0	30,0			75,0			95,0	
					404	50,0	70,0			80,0			70,0	
					Mean =	25,0	45,0	.	.	77,5	.	.	80,0	.
7	Centium 36 CS	0,1l/ha		A	105	30,0	80,0			90,0			90,0	
	Proman	1l/ha		A	207	20,0	40,0			85,0			90,0	
	Betanal	1,5l/ha		C	303	80,0	90,0			90,0			85,0	
	Nortron SC	0,14l/ha		E	408	40,0	60,0			95,0			97,0	
	Centium 36 CS	0,05l/ha		E										
	Nortron SC	0,14l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	42,5	67,5	.	.	90,0	.	.	90,5	.
8	Centium 36 CS	0,1l/ha		A	102	10,0	75,0			85,0			85,0	
	Proman	1l/ha		A	205	45,0	80,0			90,0			95,0	
	Betanal	1,5l/ha		C	307	40,0	80,0			95,0			100,0	
	Lentagran WP	0,5l/ha		E	401	80,0	95,0			95,0			95,0	
	Lentagran WP	0,5l/ha		G										
					Mean =	43,8	82,5	.	.	91,3	.	.	93,8	.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type						W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code						POAAN	POAAN	BBBBB	BBBBB	BBBBB		
Pest Scientific Name						Poa annua	Poa annua	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>		
Pest Name						Annual meadow >	Annual meadow >	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>		
Crop Code						SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale						BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name						Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description								Andet 2kimblad>	Andet 2kimblad>	Andet 2kimblad>		
Part Rated						PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C
Rating Date						04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	18-06-2018
Rating Type						GROUND	CONTRO	COUPLA	GROUND	CONTRO	PHYGEN	PHYGEN
Rating Unit						percent	percent	NUMBER	percent	percent	percent	percent
Sample Size, Unit						1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 PLOT	1 PLOT
Collection Basis, Unit						1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Number of Subsamples						1	1	1	1	1	1	1
Crop Stage Majority						53	53	53	53	53	53	71
Crop Stage Minimum/Maximum												
Pest Stage Majority						29	29					
Pest Density, Unit							6 PLA/m2			9,5 PLA/m2		
Assessed By						AHK	AHK	AHK	AHK	AHK	AHK	LMA
Days After First/Last Applic.						42 17	42 17	42 17	42 17	42 17	42 17	56 31
Trt-Eval Interval						17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	31 DA-G
ARM Action Codes							EC			EC		
Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	10	11	12	13	14	15	16
1	Untreated Check				104	7,0	0,0	15,0	7,0	0,0	0,0	0,0
					202	1,0	0,0	8,0	4,0	0,0	0,0	0,0
					308	3,0	0,0	8,0	5,0	0,0	0,0	0,0
					406	4,0	0,0	7,0	4,0	0,0	0,0	0,0
					Mean =	3,8	0,0	9,5	5,0	0,0	0,0	0,0
2	Centium 36 CS	0,2l	l/ha	A	106		70,0			70,0	0,0	0,0
	Betanal	1,5l	l/ha	C	208		80,0			75,0	0,0	0,0
	Betanal	1,0l	l/ha	E	301		90,0			50,0	15,0	25,0
	Betanal	1,0l	l/ha	G	403		95,0			50,0	15,0	35,0
					Mean =	.	83,8	.	.	61,3	7,5	15,0
3	Centium 36 CS	0,1l	l/ha	A	108		80,0			70,0	10,0	30,0
	Betanal	1,5l	l/ha	C	204		85,0			50,0	15,0	0,0
	Centium 36 CS	0,05l	l/ha	C	302		95,0			50,0	15,0	0,0
	Betanal	1,0l	l/ha	E	405		75,0			70,0	15,0	30,0
	Centium 36 CS	0,05l	l/ha	E								
	Betanal	1,0l	l/ha	G								
	Centium 36 CS	0,05l	l/ha	G								
					Mean =	.	83,8	.	.	60,0	13,8	15,0
4	Centium 36 CS	0,1l	l/ha	A	107		75,0			75,0	0,0	10,0
	Betanal	0,75l	l/ha	B	203		90,0			50,0	15,0	20,0
	Centium 36 CS	0,05l	l/ha	C	305		80,0			60,0	0,0	20,0
	Betanal	0,75l	l/ha	C	402		90,0			60,0	15,0	25,0
	Betanal	0,5l	l/ha	D								
	Centium 36 CS	0,05l	l/ha	E								
	Betanal	0,5l	l/ha	E								
	Betanal	0,5l	l/ha	F								
	Betanal	0,5l	l/ha	G								
	Centium 36 CS	0,05l	l/ha	G								
					Mean =	.	83,8	.	.	61,3	7,5	18,8
5	Command CS	0,15l	l/ha	A	101		90,0			70,0	20,0	10,0
	Venzar 500 SC	1,0l	l/ha	A	206		100,0			80,0	0,0	0,0
	Betanal	0,5l	l/ha	G	304		95,0			60,0	0,0	20,0
					407		95,0			80,0	0,0	0,0
					Mean =	.	95,0	.	.	72,5	5,0	7,5
6	Command CS	0,15l	l/ha	A	103		95,0			80,0	20,0	30,0
	Proman	0,75l	l/ha	A	201		90,0			50,0	45,0	40,0
	Betanal	0,5l	l/ha	G	306		95,0			80,0	30,0	25,0
					404		95,0			80,0	65,0	60,0
					Mean =	.	93,8	.	.	72,5	40,0	38,8
7	Centium 36 CS	0,1l	l/ha	A	105		90,0			85,0	80,0	70,0
	Proman	1l	l/ha	A	207		97,0			85,0	40,0	40,0
	Betanal	1,5l	l/ha	C	303		95,0			80,0	85,0	75,0
	Nortron SC	0,14l	l/ha	E	408		95,0			95,0	70,0	60,0
	Centium 36 CS	0,05l	l/ha	E								
	Nortron SC	0,14l	l/ha	G								
	Centium 36 CS	0,05l	l/ha	G								
					Mean =	.	94,3	.	.	86,3	68,8	61,3
8	Centium 36 CS	0,1l	l/ha	A	102		95,0			85,0	80,0	50,0
	Proman	1l	l/ha	A	205		95,0			90,0	95,0	80,0
	Betanal	1,5l	l/ha	C	307		95,0			85,0	80,0	75,0
	Lentagran WP	0,5l	l/ha	E	401		100,0			90,0	95,0	80,0
	Lentagran WP	0,5l	l/ha	G								
					Mean =	.	96,3	.	.	87,5	87,5	71,3

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-1 Protocol ID:
Location:Ellegaard Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
POLCO, Fallopia convolvulus, Black bindweed = IE
CHEAL, Chenopodium album, Common lambsquarters = US
POAAN, Poa annua, Annual meadow grass = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
COUPLA = count - plant / emergence - objective
GROUND = groundcover
CONTRO = control / burndown or knockdown
Rating Unit
NUMBER = number

PLOT = total plot
m2 = square meter

PLOT = total plot
Crop Stage Majority
12 = 2nd true leaf unfolded
53 = 30% of height of the main shoot reached
71 = First fruits formed
Crop Stage Minimum/Maximum
11 = 1st true leaf unfolded
13 = 3rd true leaf unfolded
Pest Stage Majority
55 = First individual flowers visible (still closed); G_Half of inflorescence emerged (middle of heading)
29 = 9 side shoots visible; G_9 tillers visible

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff

Discipline:H herbicide
Trial Status:F one-year/final **Trial Reliability:**good
Initiation Date:18-04-2018

Trial Location

City: Dalmose **Latitude of LL Corner °:**55,296192 N
State/Prov.: Dalmose **Longitude of LL Corner °:**11,443097 E
Postal Code:4261
Country:DNK Denmark

Conducted Under GEP: Yes

Objectives:

Hovedformål: At afprøve bladstrategier samt kombinationer af nye jordmidler til ukrudtsbekæmpelse i spinat til frø.
Delformål:
- At afprøve Centium CS 36 (Command) som blandingspartner til bladsprøjtninger med Betanal (led 2 og 3)
- At sammenligne ovenstående tankblanding, når Betanl udbringes ved henholdsvis 3 eller 6 sprøjtninger (led 3 og 4)
- At afprøve nye jordherbicider, udvalgt på baggrund af forudgående undersøgelse af jordens indhold af ukrudt fulgt op af Betanal efter aktuelt behov (led 5 og 6)
- At afprøve nye bladherbicider som alternativ til Betanal (led 7 og 8)

Conclusions:

Forsøget blev udført i Dalmose, ca 4,5 km sydøst for Flakkebjerg. Forsøget blev bedømt for effekt den 4. juni, 17 dage efter G sprøjtning (17 DA-G). Skade på spinat blev bedømt ved E og G sprøjtninger, samt 17 og 31 DA-G. Forsøget blev høstet 16. juli i hånden, og tærsket med en stationær maskine i den 7. august.

Tre forskellige ukrudtsarter blev bedømt ved effektregistrering: GALAP (*Galium aparine*, da: burresnerre), POAAN (*Poa annua*, da: enårig rapgræs), VIOAR (*Viola arvensis*; da: agerstedmoder), og en bedømmelse på andet tokimbladet ukrudt (BBBBB). Der var lavt ukrudtsdensitet af alle bedømte ukrudtsarter.

Alle testede strategier har generelt virket effektivt overfor alle bedømte ukrudtsarter.

Alle behandlede led har forårsaget ret store skader på spinat ved bedømmelser ved sprøjtning E og G, mens spinat synes at komme sig ved de sidste to skadesbedømmelser. Skader i led 4 synes at være ret alvorlige ved bedømmelse udført ved G sprøjtning (47,5%, signifikant højere end andre behandlede led).

Høstresultater viste ingen signifikant forskel mellem led 2-7, dog udbyttet i led 3 (0,8 t/ha) synes at være lavere end i de andre led (1,0-1,3 t/ha).

Der er udtaget prøver til analyse for spireevne i vinteren 2019

Personnel

Study Director: Peter Hartvig **Title:**Study director
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Investigator: Andrius Hansen Kemezys **Title:**Research project staff
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Aarhus University, Department of Agroecology, Flakkebjerg

Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale: BVNH **Planting Date:** 16-04-2018
Planting Method: DRILLE drilled
Row Spacing, Unit: 50 cm
Harvest Date: 16-07-2018
Harvested Width, Unit: 1,721 m **Harvested Length, Unit:** 3 m

Pest Description

Pest 1 Type: W **Code:** GALAP Galium aparine
Common Name: Catchweed bedstraw

Pest 2 Type: W **Code:** POAAN Poa annua
Common Name: Annual bluegrass

Pest 3 Type: W **Code:** VIOAR Viola arvensis
Common Name: Field violet

Pest 4 Type: W **Code:** BBBBB Broad-leaved plants
Common Name: Broad-leaved plants

Site and Design

Plot Width, Unit: 2,5 m
Plot Length, Unit: 6 m
Plot Area, Unit: 15 m2
Replications: 4 **Study Design:** RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand: 71 **% OM:** 2,1 **Texture:** FCL fine clay loam
% Silt: 17 **pH:** 5,8 **Soil Name:** Fine clay loam
% Clay: 12

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 4,5 km

Application Description

	A	B	C	D	E	F	G
Application Date:	18-04-2018	26-04-2018	02-05-2018	07-05-2018	10-05-2018	14-05-2018	18-05-2018
Time of Day:	13:00	10:00	9:00	9:30	10:00	10:20	11:15
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PREMCR	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP
Application Placement:	SOIL	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR
Applied By:	moa	ahk	ahk	ahk	moa	moa	moa
Air Temperature, Unit:	20 C	11,8 C	9,8 C	19,3 C	21,8 C	24,2 C	22 C
% Relative Humidity:	61	71,2	80	60	53,6	55	50
Wind Velocity, Unit:		0 -	4,2 MPS	1,5 MPS	3 MPS	2,5 MPS	1 MPS
Wind Direction:	SW		SW	S	E	NE	S
Dew Presence (Y/N):	N no	N no	N no	N no	N no	N no	N no
Soil Temperature, Unit:	15,7 C	11,4 C	8,7 C	15,7 C	18,2 C	19 C	22,7 C
Soil Moisture:	SLIDRY	DRY	DRY	VERDRY	SLIDRY	VERDRY	VERDRY
% Cloud Cover:	0	100	5	0	25	0	40
Next Rain Occurred On:	24-04-2018	27-04-2018	05-05-2018	10-05-2018	11-05-2018	26-05-2018	26-05-2018

Crop Stage At Each Application

	A	B	C	D	E	F	G
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:	00	10	10	12	14	17	34
Stage Minimum, Percent:							33
Stage Maximum, Percent:							35

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Stage At Each Application

	A	B	C	D	E	F	G
Pest 1 Code, Type, Scale:	GALAP W	GALAP W	GALAP W	GALAP W	GALAP W	GALAP W	GALAP W
Stage Majority, Percent:	00						12
Stage Maximum, Percent:							16
Pest 2 Code, Type, Scale:	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W	POAAN W
Stage Majority, Percent:	00				11		11
Stage Maximum, Percent:							12
Pest 3 Code, Type, Scale:	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W
Stage Majority, Percent:	00				11		16
Stage Minimum, Percent:							14
Stage Maximum, Percent:							18
Pest 4 Code, Type, Scale:	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W
Stage Majority, Percent:	00			09	11		14
Stage Minimum, Percent:							12
Stage Maximum, Percent:				10			18

Application Equipment

	A	B	C	D	E	F	G
Appl. Equipment:	Green spraye	Green spraye	Black spraye	Black spraye	Green spraye	Green spraye	Green spraye
Equipment Type:	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC
Operating Pressure, Unit:	2.1 BAR	2.1 BAR	1.9 BAR	1.9 BAR	2.1 BAR	2.1 BAR	2.1 BAR
Nozzle Type:	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Nozzles/Row:	4	4	4	4	4	4	4
Boom Length, Unit:	2 m	2 m	2 m	2 m	2 m	2 m	2 m
Boom Height, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Type	Treatment Name	Form Type	Description	Rate	Rate Unit	Appl Code	Appl Description
1	CHK	Untreated Check		not treated				
2	HERB	Centium 36 CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
3	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Centium 36 CS	CS		0,05	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	6-8 dage senere
4	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,75	l/ha	B	Beg. fremspiring
	HERB	Centium 36 CS	CS		0,05	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,75	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	D	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	F	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	G	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	3-4 dage senere
5	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	DFF	SC		0,025	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,5	l/ha	G	6-8 dage senere
6	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	Proman	SC		0,75	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,5	l/ha	G	6-8 dage senere
7	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Nortron SC	SC		0,14	l/ha	E	6-8 dage senere
	HERB	Centium 36 CS	SC		0,05	l/ha	E	6-8 dage senere
	HERB	Nortron SC	SC		0,14	l/ha	G	6-8 dage senere
	HERB	Centium 36 CS	SC		0,05	l/ha	G	6-8 dage senere
8	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Safari	SC		0,05	l/ha	E	6-8 dage senere
	ADJ	Renol	SC		0,1	l/ha	E	6-8 dage senere
	HERB	Safari	SC		0,05	l/ha	G	6-8 dage senere
	ADJ	Renol	SC		0,1	l/ha	G	6-8 dage senere

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2,5 meters, Treated 'Plot' experimental unit size Length: 6 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		

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Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type	W Weed	W Weed	W Weed	W Weed			
Pest Code	GALAP	POAAN	BBBBB	VIOAR			
Pest Scientific Name	Galium aparine	Poa annua	Broad-leaved p>	Viola arvensis			
Pest Name	Catchweed beds>	Annual meadow >	Broad-leaved p>	Field violet			
Crop Code	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description							
Part Rated	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C
Rating Date	04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018	04-06-2018
Rating Type	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	PHYGEN
Rating Unit	percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Reporting Basis, Unit							
Number of Subsamples	1	1	1	1	1	1	1
Crop Stage Majority	55	55	55	55	14	33-35	55
Pest Stage Majority	35	25		65			
Pest Density, Unit	1,5 PLA/m2	7,5 PLA/m2	2,5 PLA/m2	2,8 PLA/m2			
Assessed By	AHK	AHK	AHK	AHK	LMA	LMA	AHK
Days After First/Last Applic.	47 17	47 17	47 17	47 17	22 3	30 4	47 17
Trt-Eval Interval	17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G	17 DA-G
ARM Action Codes	EC ET8	EC ET8	EC ET8	EC ET8		ET8	ET8
Number of Decimals							

Trt No.	Treatment Name	Rate	Unit	Appl Code	5	8	11	14	1	2	15
1	Untreated Check				0,0	0,0	0,0	0,0	0,0e	0,0c	0,0c
2	Centium 36 CS	0,2	l/ha	A	100,0a	83,8a	80,0a	96,7a	15,0d	27,5b	2,5bc
	Betanal	1,5	l/ha	C							
	Betanal	1,0	l/ha	E							
	Betanal	1,0	l/ha	G							
3	Centium 36 CS	0,1	l/ha	A	100,0a	75,0a	83,8a	90,0a	20,0cd	32,5b	11,3bc
	Betanal	1,5	l/ha	C							
	Centium 36 CS	0,05	l/ha	C							
	Betanal	1,0	l/ha	E							
	Centium 36 CS	0,05	l/ha	E							
	Betanal	1,0	l/ha	G							
	Centium 36 CS	0,05	l/ha	G							
4	Centium 36 CS	0,1	l/ha	A	100,0a	73,8a	82,5a	95,0a	37,5a	47,5a	10,0bc
	Betanal	0,75	l/ha	B							
	Centium 36 CS	0,05	l/ha	C							
	Betanal	0,75	l/ha	C							
	Betanal	0,5	l/ha	D							
	Centium 36 CS	0,05	l/ha	E							
	Betanal	0,5	l/ha	E							
	Betanal	0,5	l/ha	F							
	Betanal	0,5	l/ha	G							
	Centium 36 CS	0,05	l/ha	G							
5	Command CS	0,15	l/ha	A	100,0a	80,0a	75,0a	90,0a	25,0bc	25,0b	16,3ab
	DFF	0,025	l/ha	A							
	Betanal	0,5	l/ha	G							
6	Command CS	0,15	l/ha	A	100,0a	85,0a	78,8a	93,3a	31,3ab	27,5b	15,0ab
	Proman	0,75	l/ha	A							
	Betanal	0,5	l/ha	G							
7	Centium 36 CS	0,1	l/ha	A	100,0a	86,3a	80,0a	93,3a	35,0a	35,0b	25,0a
	Proman	1	l/ha	A							
	Betanal	1,5	l/ha	C							
	Nortron SC	0,14	l/ha	E							
	Centium 36 CS	0,05	l/ha	E							
	Nortron SC	0,14	l/ha	G							
	Centium 36 CS	0,05	l/ha	G							

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type		W Weed	W Weed	W Weed	W Weed			
Pest Code		GALAP	POAAN	BBBBB	VIOAR			
Pest Scientific Name		Galium aparine	Poa annua	Broad-leaved p>	Viola arvensis			
Pest Name		Catchweed beds>	Annual meadow >	Broad-leaved p>	Field violet			
Crop Code		SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale		BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name		Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description								
Part Rated		PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C
Rating Date		04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018	04-06-2018
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	PHYGEN
Rating Unit		percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit		1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit		1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT
Reporting Basis, Unit								
Number of Subsamples		1	1	1	1	1	1	1
Crop Stage Majority		55	55	55	55	14	33-35	55
Pest Stage Majority		35	25		65			
Pest Density, Unit		1,5 PLA/m2	7,5 PLA/m2	2,5 PLA/m2	2,8 PLA/m2			
Assessed By		AHK	AHK	AHK	AHK	LMA	LMA	AHK
Days After First/Last Applic.		47 17	47 17	47 17	47 17	22 3	30 4	47 17
Trt-Eval Interval		17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G	17 DA-G
ARM Action Codes		EC ET8	EC ET8	EC ET8	EC ET8		ET8	ET8
Number of Decimals								
Trt No.	Treatment Name	Rate Unit Appl Code	5	8	11	14	1	2	15
8	Centium 36 CS	0,1l/ha A	100,0	92,5	91,3	98,3	33,8a	62,5	83,8
	Proman	1l/ha A							
	Betanal	1,5l/ha C							
	Safari	0,05l/ha E							
	Renol	0,1l/ha E							
	Safari	0,05l/ha G							
	Renol	0,1l/ha G							
LSD P=.05			.	12,17	15,46	20,04	7,02	7,83	9,98
Standard Deviation			0,00	8,08	10,26	11,02	4,77	5,27	6,72
CV			0,0	10,02	12,83	11,84	19,33	18,92	58,79
Levene's F				0,389	1,151	0,425	2,824	2,714	3,19
Levene's Prob(F)				0,85	0,37	0,822	0,027*	0,041*	0,022*
Skewness			.	-0,414	-1,1179*	-1,8553*	-0,5295	-0,6783	1,1063*
Kurtosis			.	-0,8155	0,5808	3,0274*	-0,3599	0,1839	1,4741
Replicate F			0,000	2,444	8,654	0,561	2,699	0,600	1,108
Replicate Prob(F)			1,0000	0,1042	0,0014	0,5878	0,0718	0,6233	0,3718
Treatment F			0,000	1,716	0,356	0,176	28,137	29,829	6,389
Treatment Prob(F)			1,0000	0,1917	0,8703	0,9654	0,0001	0,0001	0,0010

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 14=3; 18;19=3,8
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	16	17	18	19
	Pest Type							
	Pest Code							
	Pest Scientific Name							
	Pest Name							
	Crop Code				SPQOL	SPQOL	SPQOL	SPQOL
	BBCH Scale				BVNH	BVNH	BVNH	BVNH
	Crop Name				Spinach	Spinach	Spinach	Spinach
	Description					Før rensning	Efter rensning	Efter rensning
	Part Rated				PLANT C	PLANT C	PLANT C	PLANT C
	Rating Date				18-06-2018	07-08-2018	07-08-2018	07-08-2018
	Rating Type				PHYGEN	WEIFRE	WEIFRE	YIELD
	Rating Unit				percent	g	g	T-MET
	Sample Size, Unit				1 PLOT	5,1637 m2	5,1637 m2	5,1637 m2
	Collection Basis, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Reporting Basis, Unit					5,1637 m2	5,1637 m2	1 ha
	Number of Subsamples				1	1	1	1
	Crop Stage Majority				75	99	99	99
	Pest Stage Majority							
	Pest Density, Unit							
	Assessed By				LMA	AHK	AHK	AHK
	Days After First/Last Applic.				61 31	111 81	111 81	111 81
	Trt-Eval Interval				31 DA-G			
	ARM Action Codes				ET8	ET8	ET8	TY1 ET8 APOC
	Number of Decimals							1
1	Untreated Check				0,0b	1048,5a	611,0a	1,2a (100,0%)
2	Centium 36 CS	0,2	l/ha	A	15,0a	807,5a	529,0a	1,0a (86,6%)
	Betanal	1,5	l/ha	C				
	Betanal	1,0	l/ha	E				
	Betanal	1,0	l/ha	G				
3	Centium 36 CS	0,1	l/ha	A	15,0a	616,3a	412,3a	0,8a (67,5%)
	Betanal	1,5	l/ha	C				
	Centium 36 CS	0,05	l/ha	C				
	Betanal	1,0	l/ha	E				
	Centium 36 CS	0,05	l/ha	E				
	Betanal	1,0	l/ha	G				
	Centium 36 CS	0,05	l/ha	G				
4	Centium 36 CS	0,1	l/ha	A	21,3a	990,3a	671,3a	1,3a (109,9%)
	Betanal	0,75	l/ha	B				
	Centium 36 CS	0,05	l/ha	C				
	Betanal	0,75	l/ha	C				
	Betanal	0,5	l/ha	D				
	Centium 36 CS	0,05	l/ha	E				
	Betanal	0,5	l/ha	E				
	Betanal	0,5	l/ha	F				
	Betanal	0,5	l/ha	G				
	Centium 36 CS	0,05	l/ha	G				
5	Command CS	0,15	l/ha	A	16,3a	911,5a	598,8a	1,2a (98,0%)
	DFF	0,025	l/ha	A				
	Betanal	0,5	l/ha	G				
6	Command CS	0,15	l/ha	A	18,8a	1000,3a	656,5a	1,3a (107,4%)
	Proman	0,75	l/ha	A				
	Betanal	0,5	l/ha	G				
7	Centium 36 CS	0,1	l/ha	A	25,0a	967,8a	646,0a	1,3a (105,7%)
	Proman	1	l/ha	A				
	Betanal	1,5	l/ha	C				
	Nortron SC	0,14	l/ha	E				
	Centium 36 CS	0,05	l/ha	E				
	Nortron SC	0,14	l/ha	G				
	Centium 36 CS	0,05	l/ha	G				

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type						
Pest Code						
Pest Scientific Name						
Pest Name						
Crop Code			SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale			BVNH	BVNH	BVNH	BVNH
Crop Name			Spinach	Spinach	Spinach	Spinach
Description				Før rensning	Efter rensning	Efter rensning
Part Rated			PLANT C	PLANT C	PLANT C	PLANT C
Rating Date			18-06-2018	07-08-2018	07-08-2018	07-08-2018
Rating Type			PHYGEN	WEIFRE	WEIFRE	YIELD
Rating Unit			percent	g	g	T-MET
Sample Size, Unit			1 PLOT	5,1637 m2	5,1637 m2	5,1637 m2
Collection Basis, Unit			1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis, Unit				5,1637 m2	5,1637 m2	1 ha
Number of Subsamples			1	1	1	1
Crop Stage Majority			75	99	99	99
Pest Stage Majority						
Pest Density, Unit						
Assessed By			LMA	AHK	AHK	AHK
Days After First/Last Applic.			61 31	111 81	111 81	111 81
Trt-Eval Interval			31 DA-G			
ARM Action Codes			ET8	ET8	ET8	TY1 ET8 APOC
Number of Decimals						1
Trt Treatment No. Name	Rate	Rate Unit	Appl Code	16	17	18	19
8 Centium 36 CS		0,1l/ha	A	61,3	287,3	102,8	0,2
Proman		1l/ha	A				(16,8%)
Betanal		1,5l/ha	C				
Safari		0,05l/ha	E				
Renol		0,1l/ha	E				
Safari		0,05l/ha	G				
Renol		0,1l/ha	G				
LSD P=.05				10,57	412,47	289,14	0,56
Standard Deviation				7,11	277,65	193,81	0,38
CV				44,76	30,65	32,94	32,94
Levene's F				1,603	0,531	0,767	0,767
Levene's Prob(F)				0,196	0,778	0,604	0,604
Skewness				0,1347	-0,4136	-0,2912	-0,2912
Kurtosis				-0,8249	-0,2014	-0,1832	-0,1832
Replicate F				7,876	1,825	1,335	1,335
Replicate Prob(F)				0,0015	0,1787	0,2959	0,2959
Treatment F				4,929	1,157	0,885	0,885
Treatment Prob(F)				0,0038	0,3712	0,5268	0,5268

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 14=3; 18;19=3,8
Could not calculate LSD (% mean diff) for columns 5 because error mean square = 0.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
GALAP, Galium aparine, Catchweed bedstraw = US
POAAN, Poa annua, Annual meadow grass = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
VIOAR, Viola arvensis, Field violet = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
WEIFRE = weight - fresh
YIELD = yield
Rating Unit
g = gram
T-MET = ton (metric=1000 kg)

PLOT = total plot
m2 = square meter

PLOT = total plot

m2 = square meter
ha = hectare
Crop Stage Majority
55 = First individual flowers of main inflorescence visible (still closed)
14 = 4th true leaf unfolded
75 = 50% of fruits have reached typical size
99 = Harvested products (seeds)
Pest Stage Majority
35 = 5 visibly extended internode; G_5 node stage
25 = 5 side shoots visible; G_5 tillers visible
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table
ET8 = Excluded treatment 8
APOC = Automatic percent control (Control forced to 100% on AOV Means Table)
TY1 = 0.00193686*[18]

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Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code			GALAP	GALAP	GALAP	POAAN	POAAN	POAAN	POAAN	BBBBB
Pest Scientific Name			Galium aparine	Galium aparine	Galium aparine	Poa annua	Poa annua	Poa annua	Poa annua	Broad-leaved p>
Pest Name			Catchweed beds>	Catchweed beds>	Catchweed beds>	Annual meadow >	Annual meadow >	Annual meadow >	Annual meadow >	Broad-leaved p>
Crop Code	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description										
Part Rated	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date	10-05-2018	18-05-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018
Rating Type	PHYGEN	PHYGEN	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA	COUPLA
Rating Unit	percent	percent	NUMBER	percent	percent	NUMBER	percent	percent	percent	NUMBER
Sample Size, Unit	1 PLOT	1 PLOT	1 m2	1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 PLO	1 m2
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO
Reporting Basis, Unit										
Number of Subsamples	1	1	1	1	1	1	1	1	1	1
Crop Stage Majority	14	33-35	55	55	55	55	55	55	55	55
Pest Stage Majority			35	35	35	25	25	25		
Pest Density, Unit					1,5 PLA/m2			7,5 PLA/m2		
Assessed By	LMA	LMA	AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.	22 3	30 4	47 17	47 17	47 17	47 17	47 17	47 17	47 17	47 17
Trt-Eval Interval	0 DA-E	0 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G
ARM Action Codes		ET8			EC ET8			EC ET8		
Number of Decimals										

Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	1	2	3	4	5	6	7	8	9
1	Untreated Check				103	0,0	0,0	1,0	1,0	0,0	3,0	1,0	0,0	1,0
					208	0,0	0,0	5,0	2,0	0,0	5,0	2,0	0,0	7,0
					301	0,0	0,0	0,0	0,0	0,0	12,0	5,0	0,0	1,0
					407	0,0	0,0	0,0	0,0	0,0	10,0	5,0	0,0	1,0
					Mean =	0,0	0,0	1,5	0,8	0,0	7,5	3,3	0,0	2,5
2	Centium 36 CS	0,2l/ha		A	106	15,0	30,0			100,0			70,0	
	Betanal	1,5l/ha		C	201	15,0	25,0			100,0			90,0	
	Betanal	1,0l/ha		E	304	20,0	25,0			.			85,0	
	Betanal	1,0l/ha		G	402	10,0	30,0			.			90,0	
					Mean =	15,0	27,5	.	.	100,0	.	.	83,8	.
3	Centium 36 CS	0,1l/ha		A	101	20,0	30,0			100,0			70,0	
	Betanal	1,5l/ha		C	206	20,0	35,0			100,0			70,0	
	Centium 36 CS	0,05l/ha		C	303	20,0	35,0			.			90,0	
	Betanal	1,0l/ha		E	408	20,0	30,0			.			70,0	
	Centium 36 CS	0,05l/ha		E										
	Betanal	1,0l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	20,0	32,5	.	.	100,0	.	.	75,0	.
4	Centium 36 CS	0,1l/ha		A	102	40,0	45,0			100,0			60,0	
	Betanal	0,75l/ha		B	205	30,0	45,0			100,0			75,0	
	Centium 36 CS	0,05l/ha		C	307	40,0	50,0			.			70,0	
	Betanal	0,75l/ha		C	404	40,0	50,0			.			90,0	
	Betanal	0,5l/ha		D										
	Centium 36 CS	0,05l/ha		E										
	Betanal	0,5l/ha		E										
	Betanal	0,5l/ha		F										
	Betanal	0,5l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	37,5	47,5	.	.	100,0	.	.	73,8	.
5	Command CS	0,15l/ha		A	107	20,0	30,0			100,0			70,0	
	DFF	0,025l/ha		A	204	25,0	30,0			100,0			80,0	
	Betanal	0,5l/ha		G	308	25,0	15,0			.			80,0	
					405	30,0	25,0			.			90,0	
					Mean =	25,0	25,0	.	.	100,0	.	.	80,0	.
6	Command CS	0,15l/ha		A	105	25,0	20,0			100,0			80,0	
	Proman	0,75l/ha		A	202	40,0	30,0			100,0			85,0	
	Betanal	0,5l/ha		G	306	35,0	30,0			.			85,0	
					403	25,0	30,0			.			90,0	
					Mean =	31,3	27,5	.	.	100,0	.	.	85,0	.
7	Centium 36 CS	0,1l/ha		A	104	30,0	25,0			100,0			95,0	
	Proman	1l/ha		A	207	40,0	40,0			100,0			80,0	
	Betanal	1,5l/ha		C	302	40,0	45,0			.			80,0	
	Nortron SC	0,14l/ha		E	406	30,0	30,0			.			90,0	
	Centium 36 CS	0,05l/ha		E										
	Nortron SC	0,14l/ha		G										
	Centium 36 CS	0,05l/ha		G										
					Mean =	35,0	35,0	.	.	100,0	.	.	86,3	.
8	Centium 36 CS	0,1l/ha		A	108	25,0	65,0			100,0			95,0	
	Proman	1l/ha		A	203	35,0	60,0			100,0			95,0	
	Betanal	1,5l/ha		C	305	45,0	65,0			.			90,0	
	Safari	0,05l/ha		E	401	30,0	60,0			.			90,0	
	Renol	0,1l/ha		E										
	Safari	0,05l/ha		G										
	Renol	0,1l/ha		G										
					Mean =	33,8	62,5	.	.	100,0	.	.	92,5	.

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	10	11	12	13	14	15	16	17	18	19
Pest Type						W Weed	W Weed	W Weed	W Weed	W Weed					
Pest Code						BBBBB	BBBBB	VIOAR	VIOAR	VIOAR					
Pest Scientific Name						Broad-leaved p>	Broad-leaved p>	Viola arvensis	Viola arvensis	Viola arvensis					
Pest Name						Broad-leaved p>	Broad-leaved p>	Field violet	Field violet	Field violet					
Crop Code						SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale						BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name						Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description													Før rensning	Efter rensning	Efter rensning
Part Rated						PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
Rating Date						04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	18-06-2018	07-08-2018	07-08-2018	07-08-2018
Rating Type						GROUND	CONTRO	COUPLA	GROUND	CONTRO	PHYGEN	PHYGEN	WEIFRE	WEIFRE	YIELD
Rating Unit						percent	percent	NUMBER	percent	percent	percent	percent	g	g	T-MET
Sample Size, Unit						1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 PLOT	1 PLOT	5,1637 m2	5,1637 m2	5,1637 m2
Collection Basis, Unit						1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Reporting Basis, Unit													5,1637 m2	5,1637 m2	1 ha
Number of Subsamples						1	1	1	1	1	1	1	1	1	1
Crop Stage Majority						55	55	55	55	55	55	75	99	99	99
Pest Stage Majority								65	65	65					
Pest Density, Unit							2,5 PLA/m2			2,8 PLA/m2					
Assessed By						AHK	AHK	AHK	AHK	AHK	AHK	LMA	AHK	AHK	AHK
Days After First/Last Applic.						47 17	47 17	47 17	47 17	47 17	47 17	61 31	111 81	111 81	111 81
Trt-Eval Interval						17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	31 DA-G			
ARM Action Codes							EC ET8			EC ET8	ET8	ET8	ET8	ET8	TY1 ET8 APOC
Number of Decimals															1
1	Untreated Check				103	1,0	0,0	0,0	0,0	0,0	0,0	0,0	737,0	436,0	0,8
					208	3,0	0,0	5,0	3,0	0,0	0,0	0,0	1145,0	720,0	1,4
					301	1,0	0,0	5,0	3,0	0,0	0,0	0,0	1038,0	677,0	1,3
					407	1,0	0,0	1,0	1,0	0,0	0,0	0,0	1274,0		.
					Mean =	1,5	0,0	2,8	1,8	0,0	0,0	0,0	1048,5	611,0	1,2
2	Centium 36 CS	0,2	l/ha	A	106		50,0				0,0	20,0	642,0	450,0	0,9
	Betanal	1,5	l/ha	C	201		95,0			95,0	10,0	20,0	944,0	593,0	1,1
	Betanal	1,0	l/ha	E	304		95,0			100,0	0,0	10,0	801,0	532,0	1,0
	Betanal	1,0	l/ha	G	402		80,0			95,0	0,0	10,0	843,0	541,0	1,0
					Mean =	.	80,0	.	.	96,7	2,5	15,0	807,5	529,0	1,0
3	Centium 36 CS	0,1	l/ha	A	101		80,0				10,0	25,0	189,0	127,0	0,2
	Betanal	1,5	l/ha	C	206		90,0			100,0	10,0	25,0	928,0	622,0	1,2
	Centium 36 CS	0,05	l/ha	C	303		95,0			100,0	15,0	0,0	553,0	370,0	0,7
	Betanal	1,0	l/ha	E	408		70,0			70,0	10,0	10,0	795,0	530,0	1,0
	Centium 36 CS	0,05	l/ha	E											
	Betanal	1,0	l/ha	G											
	Centium 36 CS	0,05	l/ha	G											
					Mean =	.	83,8	.	.	90,0	11,3	15,0	616,3	412,3	0,8
4	Centium 36 CS	0,1	l/ha	A	102		80,0				10,0	25,0	880,0	625,0	1,2
	Betanal	0,75	l/ha	B	205		80,0			100,0	10,0	30,0	809,0	540,0	1,0
	Centium 36 CS	0,05	l/ha	C	307		90,0			90,0	10,0	20,0	884,0	590,0	1,1
	Betanal	0,75	l/ha	C	404		80,0			95,0	10,0	10,0	1388,0	930,0	1,8
	Betanal	0,5	l/ha	D											
	Centium 36 CS	0,05	l/ha	E											
	Betanal	0,5	l/ha	E											
	Betanal	0,5	l/ha	F											
	Betanal	0,5	l/ha	G											
	Centium 36 CS	0,05	l/ha	G											
					Mean =	.	82,5	.	.	95,0	10,0	21,3	990,3	671,3	1,3
5	Command CS	0,15	l/ha	A	107		50,0				15,0	25,0	530,0	333,0	0,6
	DFF	0,025	l/ha	A	204		90,0			100,0	30,0	30,0	718,0	453,0	0,9
	Betanal	0,5	l/ha	G	308		90,0			70,0	10,0	10,0	1244,0	839,0	1,6
					405		70,0			100,0	10,0	0,0	1154,0	770,0	1,5
					Mean =	.	75,0	.	.	90,0	16,3	16,3	911,5	598,8	1,2
6	Command CS	0,15	l/ha	A	105		50,0				10,0	10,0	1344,0	888,0	1,7
	Proman	0,75	l/ha	A	202		95,0			95,0	20,0	40,0	537,0	347,0	0,7
	Betanal	0,5	l/ha	G	306		90,0			90,0	10,0	10,0	1011,0	675,0	1,3
					403		80,0			95,0	20,0	15,0	1109,0	716,0	1,4
					Mean =	.	78,8	.	.	93,3	15,0	18,8	1000,3	656,5	1,3
7	Centium 36 CS	0,1	l/ha	A	104		80,0				10,0	20,0	1233,0	853,0	1,7
	Proman	1	l/ha	A	207		80,0			90,0	20,0	35,0	451,0	313,0	0,6
	Betanal	1,5	l/ha	C	302		90,0			90,0	40,0	25,0	1160,0	753,0	1,5
	Nortron SC	0,14	l/ha	E	406		70,0			100,0	30,0	20,0	1027,0	665,0	1,3
	Centium 36 CS	0,05	l/ha	E											
	Nortron SC	0,14	l/ha	G											
	Centium 36 CS	0,05	l/ha	G											
					Mean =	.	80,0	.	.	93,3	25,0	25,0	967,8	646,0	1,3
8	Centium 36 CS	0,1	l/ha	A	108		80,0				85,0	60,0	375,0	128,0	0,2
	Proman	1	l/ha	A	203		95,0			100,0	85,0	65,0	26,0	11,0	0,0
	Betanal	1,5	l/ha	C	305		95,0			100,0	85,0	60,0	257,0	83,0	0,2
	Safari	0,05	l/ha	E	401		95,0			95,0	80,0	60,0	491,0	189,0	0,4
	Renol	0,1	l/ha	E											
	Safari	0,05	l/ha	G											
	Renol	0,1	l/ha	G											
					Mean =	.	91,3	.	.	98,3	83,8	61,3	287,3	102,8	0,2

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Ukrudtsbekæmpelse i spinat til frø - afprøvening af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-2 Protocol ID:
Location:Dalmose Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
GALAP, Galium aparine, Catchweed bedstraw = US
POAAN, Poa annua, Annual meadow grass = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
VIOAR, Viola arvensis, Field violet = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
COUPLA = count - plant / emergence - objective
GROUND = groundcover
CONTRO = control / burndown or knockdown
WEIFRE = weight - fresh
YIELD = yield
Rating Unit
NUMBER = number
g = gram
T-MET = ton (metric=1000 kg)

PLOT = total plot
m2 = square meter

PLOT = total plot

m2 = square meter
ha = hectare
Crop Stage Majority
14 = 4th true leaf unfolded
55 = First individual flowers of main inflorescence visible (still closed)
75 = 50% of fruits have reached typical size
99 = Harvested products (seeds)
Pest Stage Majority
35 = 5 visibly extended internode; G_5 node stage
25 = 5 side shoots visible; G_5 tillers visible
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
ET8 = Excluded treatment 8
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table
APOC = Automatic percent control (Control forced to 100% on AOV Means Table)
TY1 = 0.00193686*[18]

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

General Trial Information

Study Director: Peter Hartvig **Title:**Managing agricultural technician
Investigator: Andrius Hansen Kemezys **Title:**Research project staff
Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**high
Initiation Date:23-04-2018

Trial Location

City: Fyrendal **Latitude of LL Corner °:**55,253492 N
State/Prov.: Sandved **Longitude of LL Corner °:**11,51365 E
Postal Code:4262
Country:DNK Denmark
Conducted Under GEP: Yes

Objectives:

Hovedformål: At afprøve bladstrategier samt kombinationer af nye jordmidler til ukrudtsbekæmpelse i spinat til frø.
Delformål:
- At afprøve Centium CS 36 (Command) som blandingspartner til bladsprøjtninger med Betanal (led 2 og 3)
- At sammenligne ovenstående tankblanding, når Betanl udbringes ved henholdsvis 3 eller 6 sprøjtninger (led 3 og 4)
- At afprøve nye jordherbicider, udvalgt på baggrund af forudgående undersøgelse af jordens indhold af ukrudt fulgt op af Betanal efter aktuelt behov (led 5 og 6)
- At afprøve nye bladherbicider som alternativ til Betanal (led 7 og 8)

Conclusions:

Forsøget blev udført i Fyrendal, ca 11 km sydøst for Flakkebjerg. Forsøget blev bedømt for effekt den 4. juni, 17 dage efter G sprøjtning (17 DA-G). Skade på spinat blev bedømt ved E og G sprøjtningerne, samt 17 og 31 DA-G. Dette forsøg blev vurderet uegnet til høst, da spinaten tydeligt har været påvirket af ukrudt ved effektbedømmelse.

Fire forskellige ukrudtsarter blev bedømt ved effektregistrering: CHEAL (*Chenopodium album*; da: hvidmelet gåsefod), VERSS (*Veronica sp*.; da: ærenpris), VIOAR (*Viola arvensis*; da: agerstedmoder), POLCO (*Fallopia convolvulus*; da: snerlepileurt) og en bedømmelse på andet tokimbladet ukrudt (BBBBB). Der var moderat ukrudtsdensitet af alle bedømte ukrudtsarter.

Alle testede strategier har generelt været rimeligt til moderat effektive overfor alle bedømte ukrudtsarter. Led 3 har vist lavest effekt overfor CHEAL. Led 2 og delvist led 5 har vist lavest effekt overfor VERSS og VIOAR. Led 4 synes at klare sig bedst overfor VERSS og VIOAR.

Resultater fra skadebedømmelserne har vist, at led 7 har skadet spinat i meget alvorlig grad ved de sidste tre bedømmelser (73,8-83,8% skade). Lentagran WP kan identificeres som årsag til skade i led 7. Led 4 og delvis led 3 har forårsaget ret store skader på spinat ved bedømmelserne ved sprøjtning E og G, men spinaten synes at komme sig ved de sidste to skadesbedømmelser.

Personnel

Study Director: Peter Hartvig **Title:**Managing agricultural technician
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Investigator: Andrius Hansen Kemezys **Title:**Research project staff
Affiliation: Aarhus University, Department of Agroecology
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Location: Slagelse
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Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale:BVNH **Planting Date:**20-04-2018
Row Spacing, Unit:50 cm

Forsøg 18-425, 18-427-1, 18-427-2, 18-427-3, 18-429, 18-430, 18-441 og 18-442
Ukrudtsbekæmpelse i havefrø
– herbicidafprøvning ved AU Flakkebjerg 2018

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Description

Pest 1 Type: W **Code:**CHEAL Chenopodium album
Common Name: Common lambsquarters

Pest 2 Type: W **Code:**VERSS Veronica sp.
Common Name: Speedwell

Pest 3 Type: W **Code:**VIOAR Viola arvensis
Common Name: Field violet

Pest 4 Type: W **Code:**POLCO Fallopia convolvulus
Common Name: Black bindweed

Pest 5 Type: W **Code:**BBBBB Broad-leaved plants
Common Name: Broad-leaved plants

Site and Design

Plot Width, Unit:2 m **Site Type:**FIELD field
Plot Length, Unit:10 m **Experimental Unit:**1 PLOT plot
Plot Area, Unit:20 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand:70 **% OM:**2,3 **Texture:**FSL fine sandy loam
% Silt:16 **pH:**6,4
% Clay:14
Analyzed By:

Eurofins Agro Testing Danmark A/S

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 11 km

Application Description

	A	B	C	D	E	F	G
Application Date:	23-04-2018	26-04-2018	02-05-2018	07-05-2018	10-05-2018	14-05-2018	18-05-2018
Time of Day:	11:30	11:00	10:00	10:00	11:50	11:00	12:30
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PSPE	ATGRST	FIINSP	FIINSP	FIINSP	FIINSP	FIINSP
Application Placement:	SOIL	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR	FOLIAR
Applied By:	AHK	AHK	AHK	AHK	MOA	MOA	MOA
Air Temperature, Unit:	16,5 C	11,5 C	11 C	20,2 C	21,8 C	21,8 C	18,4 C
% Relative Humidity:	59	84	80	44,6	54,8	58,3	61,3
Wind Velocity, Unit:	4,5 MPS	3 MPS	4,5 MPS	0 MPS	3,5 MPS	1,5 MPS	1,5 MPS
Wind Direction:	SW	SW	SSE		E	NE	S
Dew Presence (Y/N):	N no	N no	N no	N no	N no	N no	N no
Soil Temperature, Unit:	13,7 C	10,7 C	10,7 C	14,9 C	19,4 C	19,8 C	22,3 C
Soil Moisture:	VERDRY	SLIWET	SLIWET	VERDRY	DRY	VERDRY	VERDRY
% Cloud Cover:	50	75	0	0	90	0	10
Next Rain Occurred On:	24-04-2018	27-04-2018	05-05-2018	10-05-2018	11-05-2018	26-05-2018	26-05-2018

Crop Stage At Each Application

	A	B	C	D	E	F	G
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:	05	09-10	10	10-12	11-13	13-16	14-16

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Stage At Each Application

	A	B	C	D	E	F	G
Pest 1 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent:				9-10	10-12		14-18
Density, Unit:				1 PLA/m2	1 PLA/m2		7,5 PLA/m2
Pest 2 Code, Type, Scale:	VERSS W	VERSS W	VERSS W	VERSS W	VERSS W	VERSS W	VERSS W
Stage Majority, Percent:					10-12		12-16
Density, Unit:					7,5 PLA/m2		30 PLA/m2
Pest 3 Code, Type, Scale:	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W	VIOAR W
Stage Majority, Percent:				9-10	10-12		12-14
Density, Unit:				6,5 PLA/m2	7,5 PLA/m2		3 PLA/m2
Pest 4 Code, Type, Scale:	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W	POLCO W
Stage Majority, Percent:			10		10-11		12-16
Density, Unit:			3 PLA/m2		3 PLA/m2		7,5 PLA/m2
Pest 5 Code, Type, Scale:	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W	BBBBB W
Stage Majority, Percent:		10					
Density, Unit:		3,5 PLA/m2	4 PLA/m2	4 PLA/m2			

Application Equipment

	A	B	C	D	E	F	G
Appl. Equipment:	Green spraye	Green spraye	Black spraye	Black spraye	Green spraye	Black spraye	Green spraye
Equipment Type:	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC	SPRBIC
Operating Pressure, Unit:	2.1 BAR	2.1 BAR	1.9 BAR	1.9 BAR	2.1 BAR	1.9 BAR	2.1 BAR
Nozzle Type:	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Nozzles/Row:	5	5	5	5	4	4	5
Boom Length, Unit:	2.5 m	2.5 m	2.5 m	2.5 m	2 m	2 m	2.5 m
Boom Height, Unit:	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters	4 liters

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Type	Treatment Name	Form Type	Description	Rate	Rate Unit	Appl Code	Appl Description
1	CHK	Untreated Check		not treated				
2	HERB	Centium 36 CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
3	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Centium 36 CS	CS		0,05	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1,0	l/ha	E	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		1,0	l/ha	G	6-8 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	6-8 dage senere
4	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		0,75	l/ha	B	Beg. fremspiring
	HERB	Centium 36 CS	CS		0,05	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,75	l/ha	C	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	D	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	E	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	F	3-4 dage senere
	HERB	Betanal	SC		0,5	l/ha	G	3-4 dage senere
	HERB	Centium 36 CS	CS		0,05	l/ha	G	3-4 dage senere
5	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	DFF	SC		0,025	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		1	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		0,75	l/ha	G	6-8 dage senere
6	HERB	Command CS	CS		0,15	l/ha	A	Lige efter såning
	HERB	Venzar 500 SC	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1	l/ha	C	Ukrudt kimblade
	HERB	Betanal	SC		0,75	l/ha	E	6-8 dage senere
	HERB	Betanal	SC		0,75	l/ha	G	6-8 dage senere
7	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Lentagran WP	WP		0,5	kg/ha	E	6-8 dage senere
	HERB	Lentagran WP	WP		0,5	kg/ha	G	6-8 dage senere
8	HERB	Centium 36 CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Proman	SC		1	l/ha	A	Lige efter såning
	HERB	Betanal	SC		1,5	l/ha	C	Ukrudt kimblade
	HERB	Safari	SC		0,05	l/ha	E	6-8 dage senere
	ADJ	Renol	SC		0,1	l/ha	E	6-8 dage senere
	HERB	Safari	SC		0,05	l/ha	G	6-8 dage senere
	ADJ	Renol	SC		0,1	l/ha	G	6-8 dage senere

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2 meters, Treated 'Plot' experimental unit size Length: 10 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		

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Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code			CHEAL	VERSS	VIOAR	POLCO	BBBBB		
Pest Scientific Name			Chenopodium al>	Veronica sp.	Viola arvensis	Fallopia convo>	Broad-leaved p>		
Pest Name			Common lambsqu>	Speedwell	Field violet	Black bindweed	Broad-leaved p>		
Crop Code			SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale			BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name			Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description							Andet 2 kim		
Part Rated			PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C
Rating Date			04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN
Rating Unit			percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit			1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Collection Basis, Unit			1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Number of Subsamples			1	1	1	1	1	1	1
Crop Stage Majority			55	55	55	55	55	12	12
Crop Stage Minimum/Maximum								11 13	11 13
Pest Stage Majority			55	65	65	35			
Pest Density, Unit			8 PLA/m2	21 PLA/m2	11 PLA/m2	4,5 PLA/m2	9 PLA/m2		
Assessed By			AHK	AHK	AHK	AHK	AHK	LMA	LMA
Days After First/Last Applic.			42 17	42 17	42 17	42 17	42 17	17 3	25 4
Trt-Eval Interval			17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G
ARM Action Codes			EC ET8	EC ET8	EC ET8	EC ET8	EC ET8		ET8
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	5	8	11	14	17	1	2
1	Untreated Check				0,0	0,0	0,0	0,0	0,0	0,0d	0,0d
2	Centium 36 CS	0,2	l/ha	A	72,5bc	85,0b	80,0b	72,5a	92,5a	15,0c	25,0c
	Betanal	1,5	l/ha	C							
	Betanal	1,0	l/ha	E							
	Betanal	1,0	l/ha	G							
3	Centium 36 CS	0,1	l/ha	A	71,3c	90,0ab	88,8ab	82,5a	91,3a	22,5c	40,0b
	Betanal	1,5	l/ha	C							
	Centium 36 CS	0,05	l/ha	C							
	Betanal	1,0	l/ha	E							
	Centium 36 CS	0,05	l/ha	E							
	Betanal	1,0	l/ha	G							
	Centium 36 CS	0,05	l/ha	G							
4	Centium 36 CS	0,1	l/ha	A	77,5abc	95,0a	90,0a	77,5a	93,3a	36,3b	38,8b
	Betanal	0,75	l/ha	B							
	Centium 36 CS	0,05	l/ha	C							
	Betanal	0,75	l/ha	C							
	Betanal	0,5	l/ha	D							
	Centium 36 CS	0,05	l/ha	E							
	Betanal	0,5	l/ha	E							
	Betanal	0,5	l/ha	F							
	Betanal	0,5	l/ha	G							
	Centium 36 CS	0,05	l/ha	G							
5	Command CS	0,15	l/ha	A	72,5bc	83,8b	81,3ab	76,3a	90,0a	18,8c	22,5c
	DFF	0,025	l/ha	A							
	Betanal	1	l/ha	C							
	Betanal	1	l/ha	E							
	Betanal	0,75	l/ha	G							
6	Command CS	0,15	l/ha	A	80,0ab	88,8ab	81,3ab	83,8a	91,3a	16,3c	25,0c
	Venzar 500 SC	1	l/ha	A							
	Betanal	1	l/ha	C							
	Betanal	0,75	l/ha	E							
	Betanal	0,75	l/ha	G							
7	Centium 36 CS	0,1	l/ha	A	83,8a	88,8ab	87,5ab	82,5a	92,5a	45,0ab	78,8a
	Proman	1	l/ha	A							
	Betanal	1,5	l/ha	C							
	Lentagran WP	0,5	kg/ha	E							
	Lentagran WP	0,5	kg/ha	G							

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed		
Pest Code		CHEAL	VERSS	VIOAR	POLCO	BBBBB		
Pest Scientific Name		Chenopodium al>	Veronica sp.	Viola arvensis	Fallopia convo>	Broad-leaved p>		
Pest Name		Common lambsqu>	Speedwell	Field violet	Black bindweed	Broad-leaved p>		
Crop Code		SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale		BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name		Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description						Andet 2 kim		
Part Rated		PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C
Rating Date		04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	10-05-2018	18-05-2018
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN
Rating Unit		percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit		1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Collection Basis, Unit		1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Number of Subsamples		1	1	1	1	1	1	1
Crop Stage Majority		55	55	55	55	55	12	12
Crop Stage Minimum/Maximum							11 13	11 13
Pest Stage Majority		55	65	65	35			
Pest Density, Unit		8 PLA/m2	21 PLA/m2	11 PLA/m2	4,5 PLA/m2	9 PLA/m2		
Assessed By		AHK	AHK	AHK	AHK	AHK	LMA	LMA
Days After First/Last Applic.		42 17	42 17	42 17	42 17	42 17	17 3	25 4
Trt-Eval Interval		17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	0 DA-E	0 DA-G
ARM Action Codes		EC ET8	EC ET8	EC ET8	EC ET8	EC ET8		ET8
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	5	8	11	14	17	1	2
8	Centium 36 CS	0,1	l/ha	A	76,3	82,5	85,0	85,0	95,0	47,5a	73,8
	Proman	1	l/ha	A							
	Betanal	1,5	l/ha	C							
	Safari	0,05	l/ha	E							
	Renol	0,1	l/ha	E							
	Safari	0,05	l/ha	G							
	Renol	0,1	l/ha	G							
LSD P=.05					5,73	5,31	6,49	8,52	5,77	8,77	6,80
Standard Deviation					3,80	3,53	4,31	5,65	3,83	5,97	4,58
CV					4,98	3,98	5,08	7,14	4,17	23,72	13,92
Levene's F					0,327	1,368	2,172	0,847	0,354	1,256	0,921
Levene's Prob(F)					0,89	0,282	0,103	0,534	0,873	0,313	0,50
Skewness					0,5824	-0,776	-1,2815*	0,3389	-0,1963	0,2126	0,7754
Kurtosis					-0,2973	0,9893	1,0182	-0,4859	-0,4672	-0,7862	0,3473
Replicate F					1,058	1,872	3,652	0,609	0,329	1,485	0,569
Replicate Prob(F)					0,3962	0,1778	0,0371	0,6196	0,8045	0,2475	0,6427
Treatment F					6,923	5,112	4,236	2,478	0,378	30,166	111,540
Treatment Prob(F)					0,0016	0,0062	0,0133	0,0793	0,8559	0,0001	0,0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys

Pest Type				W Weed	W Weed
Pest Code					
Pest Scientific Name					
Pest Name					
Crop Code				SPQOL	SPQOL
BBCH Scale				BVNH	BVNH
Crop Name				Spinach	Spinach
Description					
Part Rated				PLANT C	PLANT C
Rating Date				04-06-2018	18-06-2018
Rating Type				PHYGEN	PHYGEN
Rating Unit				percent	percent
Sample Size, Unit				1 PLOT	1 PLOT
Collection Basis, Unit				1 PLOT	1 PLOT
Number of Subsamples				1	1
Crop Stage Majority				55	71
Crop Stage Minimum/Maximum					
Pest Stage Majority					
Pest Density, Unit					
Assessed By				AHK	LMA
Days After First/Last Applic.				42 17	56 31
Trt-Eval Interval				17 DA-G	31 DA-G
ARM Action Codes				ET8	ET8
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	18	19
1	Untreated Check				0,0c	0,0c
2	Centium 36 CS	0,2	l/ha	A	2,5c	5,0bc
	Betanal	1,5	l/ha	C		
	Betanal	1,0	l/ha	E		
	Betanal	1,0	l/ha	G		
3	Centium 36 CS	0,1	l/ha	A	16,3b	10,0b
	Betanal	1,5	l/ha	C		
	Centium 36 CS	0,05	l/ha	C		
	Betanal	1,0	l/ha	E		
	Centium 36 CS	0,05	l/ha	E		
	Betanal	1,0	l/ha	G		
	Centium 36 CS	0,05	l/ha	G		
4	Centium 36 CS	0,1	l/ha	A	2,5c	0,0c
	Betanal	0,75	l/ha	B		
	Centium 36 CS	0,05	l/ha	C		
	Betanal	0,75	l/ha	C		
	Betanal	0,5	l/ha	D		
	Centium 36 CS	0,05	l/ha	E		
	Betanal	0,5	l/ha	E		
	Betanal	0,5	l/ha	F		
	Betanal	0,5	l/ha	G		
	Centium 36 CS	0,05	l/ha	G		
5	Command CS	0,15	l/ha	A	5,0c	1,3c
	DFF	0,025	l/ha	A		
	Betanal	1	l/ha	C		
	Betanal	1	l/ha	E		
	Betanal	0,75	l/ha	G		
6	Command CS	0,15	l/ha	A	2,5c	0,0c
	Venzar 500 SC	1	l/ha	A		
	Betanal	1	l/ha	C		
	Betanal	0,75	l/ha	E		
	Betanal	0,75	l/ha	G		
7	Centium 36 CS	0,1	l/ha	A	83,8a	73,8a
	Proman	1	l/ha	A		
	Betanal	1,5	l/ha	C		
	Lentagran WP	0,5	kg/ha	E		
	Lentagran WP	0,5	kg/ha	G		

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type					W Weed	W Weed
Pest Code						
Pest Scientific Name						
Pest Name						
Crop Code					SPQOL	SPQOL
BBCH Scale					BVNH	BVNH
Crop Name					Spinach	Spinach
Description						
Part Rated					PLANT C	PLANT C
Rating Date					04-06-2018	18-06-2018
Rating Type					PHYGEN	PHYGEN
Rating Unit					percent	percent
Sample Size, Unit					1 PLOT	1 PLOT
Collection Basis, Unit					1 PLOT	1 PLOT
Number of Subsamples					1	1
Crop Stage Majority					55	71
Crop Stage Minimum/Maximum						
Pest Stage Majority						
Pest Density, Unit						
Assessed By					AHK	LMA
Days After First/Last Applic.					42 17	56 31
Trt-Eval Interval					17 DA-G	31 DA-G
ARM Action Codes					ET8	ET8
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	18	19
8	Centium 36 CS	0,1	l/ha	A	88,8	77,5
	Proman	1	l/ha	A		
	Betanal	1,5	l/ha	C		
	Safari	0,05	l/ha	E		
	Renol	0,1	l/ha	E		
	Safari	0,05	l/ha	G		
	Renol	0,1	l/ha	G		
LSD P=.05					6,83	5,86
Standard Deviation					4,60	3,95
CV					28,6	30,7
Levene's F					0,833	3,056
Levene's Prob(F)					0,558	0,026*
Skewness					1,9611*	2,0694*
Kurtosis					2,3436*	2,7279*
Replicate F					0,507	0,153
Replicate Prob(F)					0,6824	0,9265
Treatment F					173,958	188,694
Treatment Prob(F)					0,0001	0,0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Aarhus University, Department of Agroecology, Flakkebjerg

Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
CHEAL, Chenopodium album, Common lambsquarters = US
VERSS, Veronica sp., Speedwell = US
VIOAR, Viola arvensis, Field violet = US
POLCO, Fallopia convolvulus, Black bindweed = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury

PLOT = total plot

PLOT = total plot
Crop Stage Majority
55 = First individual flowers of main inflorescence visible (still closed)
12 = 2nd true leaf unfolded
71 = First fruits formed
Crop Stage Minimum/Maximum
11 = 1st true leaf unfolded
13 = 3rd true leaf unfolded
Pest Stage Majority
55 = First individual flowers visible (still closed); G_Half of inflorescence emerged (middle of heading)
65 = Full flowering: 50% of flowers open, first petals may be fallen
35 = 5 visibly extended internode; G_5 node stage

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table
ET8 = Excluded treatment 8

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Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code			CHEAL	CHEAL	CHEAL	VERSS	VERSS	VERSS	VIOAR	
Pest Scientific Name			Chenopodium al>	Chenopodium al>	Chenopodium al>	Veronica sp.	Veronica sp.	Veronica sp.	Viola arvensis	
Pest Name			Common lambsqu>	Common lambsqu>	Common lambsqu>	Speedwell	Speedwell	Speedwell	Field violet	
Crop Code		SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale		BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name		Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description										
Part Rated		PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date		10-05-2018	18-05-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018
Rating Type		PHYGEN	PHYGEN	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA
Rating Unit		percent	percent	NUMBER	percent	percent	NUMBER	percent	percent	NUMBER
Sample Size, Unit		1 PLOT	1 PLOT	1 m2	1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 m2
Collection Basis, Unit		1 PLOT	1 PLOT	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO
Number of Subsamples		1	1	1	1	1	1	1	1	1
Crop Stage Majority		12	12	55	55	55	55	55	55	55
Crop Stage Minimum/Maximum		11 13	11 13							
Pest Stage Majority				55	55	55	65	65	65	65
Pest Density, Unit						8 PLA/m2			21 PLA/m2	
Assessed By		LMA	LMA	AHK	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.		17 3	25 4	42 17	42 17	42 17	42 17	42 17	42 17	42 17
Trt-Eval Interval		0 DA-E	0 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G
ARM Action Codes			ET8			EC ET8			EC ET8	

Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	1	2	3	4	5	6	7	8	9
1	Untreated Check				103	0,0	0,0	8,0	10,0	0,0	20,0	15,0	0,0	10,0
					207	0,0	0,0	8,0	10,0	0,0	20,0	15,0	0,0	10,0
					304	0,0	0,0	8,0	10,0	0,0	25,0	20,0	0,0	10,0
					402	0,0	0,0	8,0	12,0	0,0	20,0	15,0	0,0	15,0
					Mean =	0,0	0,0	8,0	10,5	0,0	21,3	16,3	0,0	11,3
2	Centium 36 CS	0,2l	l/ha	A	108	15,0	25,0			70,0			90,0	
	Betanal	1,5l	l/ha	C	204	20,0	20,0			70,0			75,0	
	Betanal	1,0l	l/ha	E	307	10,0	25,0			80,0			90,0	
	Betanal	1,0l	l/ha	G	405	15,0	30,0			70,0			85,0	
					Mean =	15,0	25,0	.	.	72,5	.	.	85,0	.
3	Centium 36 CS	0,1l	l/ha	A	105	25,0	30,0			70,0			90,0	
	Betanal	1,5l	l/ha	C	203	30,0	45,0			75,0			90,0	
	Centium 36 CS	0,05l	l/ha	C	308	10,0	40,0			70,0			85,0	
	Betanal	1,0l	l/ha	E	406	25,0	45,0			70,0			95,0	
	Centium 36 CS	0,05l	l/ha	E										
	Betanal	1,0l	l/ha	G										
	Centium 36 CS	0,05l	l/ha	G										
					Mean =	22,5	40,0	.	.	71,3	.	.	90,0	.
4	Centium 36 CS	0,1l	l/ha	A	107	40,0	35,0			80,0			95,0	
	Betanal	0,75l	l/ha	B	201	40,0	40,0			75,0			95,0	
	Centium 36 CS	0,05l	l/ha	C	303	30,0	45,0			80,0			95,0	
	Betanal	0,75l	l/ha	C	408	35,0	35,0			75,0			95,0	
	Betanal	0,5l	l/ha	D										
	Centium 36 CS	0,05l	l/ha	E										
	Betanal	0,5l	l/ha	E										
	Betanal	0,5l	l/ha	F										
	Betanal	0,5l	l/ha	G										
	Centium 36 CS	0,05l	l/ha	G										
					Mean =	36,3	38,8	.	.	77,5	.	.	95,0	.
5	Command CS	0,15l	l/ha	A	104	20,0	25,0			75,0			85,0	
	DFF	0,025l	l/ha	A	208	20,0	25,0			70,0			80,0	
	Betanal	1	l/ha	C	306	25,0	25,0			75,0			85,0	
	Betanal	1	l/ha	E	401	10,0	15,0			70,0			85,0	
	Betanal	0,75l	l/ha	G										
					Mean =	18,8	22,5	.	.	72,5	.	.	83,8	.
6	Command CS	0,15l	l/ha	A	102	20,0	25,0			85,0			90,0	
	Venzar 500 SC	1	l/ha	A	205	15,0	30,0			80,0			90,0	
	Betanal	1	l/ha	C	301	20,0	25,0			75,0			85,0	
	Betanal	0,75l	l/ha	E	404	10,0	20,0			80,0			90,0	
	Betanal	0,75l	l/ha	G										
					Mean =	16,3	25,0	.	.	80,0	.	.	88,8	.
7	Centium 36 CS	0,1l	l/ha	A	106	50,0	80,0			80,0			90,0	
	Proman	1	l/ha	A	202	50,0	75,0			80,0			85,0	
	Betanal	1,5l	l/ha	C	305	40,0	80,0			90,0			90,0	
	Lentagran WP	0,5	kg/ha	E	403	40,0	80,0			85,0			90,0	
	Lentagran WP	0,5	kg/ha	G										
					Mean =	45,0	78,8	.	.	83,8	.	.	88,8	.
8	Centium 36 CS	0,1l	l/ha	A	101	50,0	70,0			85,0			85,0	
	Proman	1	l/ha	A	206	40,0	75,0			70,0			80,0	
	Betanal	1,5l	l/ha	C	302	60,0	75,0			80,0			80,0	
	Safari	0,05l	l/ha	E	407	40,0	75,0			70,0			85,0	
	Renol	0,1l	l/ha	E										
	Safari	0,05l	l/ha	G										
	Renol	0,1l	l/ha	G										
					Mean =	47,5	73,8	.	.	76,3	.	.	82,5	.

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af bladstrategier samt kombinationer af nye jordmidler.

Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	10	11	12	13	14	15	16	17	18
Pest Type						W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code						VIOAR	VIOAR	POLCO	POLCO	POLCO	BBBBB	BBBBB	BBBBB	
Pest Scientific Name						Viola arvensis	Viola arvensis	Fallopia convo>	Fallopia convo>	Fallopia convo>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	
Pest Name						Field violet	Field violet	Black bindweed	Black bindweed	Black bindweed	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	
Crop Code						SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale						BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name						Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description											Andet 2 kim	Andet 2 kim	Andet 2 kim	
Part Rated						PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C
Rating Date						04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018	04-06-2018
Rating Type						GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	PHYGEN
Rating Unit						percent	percent	NUMBER	percent	percent	NUMBER	percent	percent	percent
Sample Size, Unit						1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 PLOT
Collection Basis, Unit						1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT
Number of Subsamples						1	1	1	1	1	1	1	1	1
Crop Stage Majority						55	55	55	55	55	55	55	55	55
Crop Stage Minimum/Maximum														
Pest Stage Majority						65	65	35	35	35				
Pest Density, Unit							11 PLA/m2			4,5 PLA/m2			9 PLA/m2	
Assessed By						AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.						42 17	42 17	42 17	42 17	42 17	42 17	42 17	42 17	42 17
Trt-Eval Interval						17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G	17 DA-G
ARM Action Codes							EC ET8			EC ET8			EC ET8	ET8
1	Untreated Check				103	7,0	0,0	5,0	3,0	0,0	12,0	10,0	0,0	0,0
					207	7,0	0,0	5,0	3,0	0,0	8,0	8,0	0,0	0,0
					304	7,0	0,0	5,0	3,0	0,0	8,0	8,0	0,0	0,0
					402	10,0	0,0	3,0	2,0	0,0	8,0	8,0	0,0	0,0
					Mean =	7,8	0,0	4,5	2,8	0,0	9,0	8,5	0,0	0,0
2	Centium 36 CS	0,2	l/ha	A	108		85,0			70,0			95,0	0,0
	Betanal	1,5	l/ha	C	204		70,0			70,0			90,0	10,0
	Betanal	1,0	l/ha	E	307		80,0			80,0			95,0	0,0
	Betanal	1,0	l/ha	G	405		85,0			70,0			90,0	0,0
					Mean =	.	80,0	.	.	72,5	.	.	92,5	2,5
3	Centium 36 CS	0,1	l/ha	A	105		90,0			75,0			90,0	10,0
	Betanal	1,5	l/ha	C	203		90,0			90,0			95,0	20,0
	Centium 36 CS	0,05	l/ha	C	308		85,0			85,0			90,0	15,0
	Betanal	1,0	l/ha	E	406		90,0			80,0			90,0	20,0
	Centium 36 CS	0,05	l/ha	E										
	Betanal	1,0	l/ha	G										
	Centium 36 CS	0,05	l/ha	G										
					Mean =	.	88,8	.	.	82,5	.	.	91,3	16,3
4	Centium 36 CS	0,1	l/ha	A	107		90,0			75,0			95,0	0,0
	Betanal	0,75	l/ha	B	201		90,0			75,0			95,0	0,0
	Centium 36 CS	0,05	l/ha	C	303		90,0			80,0			98,0	10,0
	Betanal	0,75	l/ha	C	408		90,0			80,0			85,0	0,0
	Betanal	0,5	l/ha	D										
	Centium 36 CS	0,05	l/ha	E										
	Betanal	0,5	l/ha	E										
	Betanal	0,5	l/ha	F										
	Betanal	0,5	l/ha	G										
	Centium 36 CS	0,05	l/ha	G										
					Mean =	.	90,0	.	.	77,5	.	.	93,3	2,5
5	Command CS	0,15	l/ha	A	104		90,0			75,0			90,0	10,0
	DFF	0,025	l/ha	A	208		70,0			80,0			85,0	0,0
	Betanal	1	l/ha	C	306		85,0			70,0			90,0	10,0
	Betanal	1	l/ha	E	401		80,0			80,0			95,0	0,0
	Betanal	0,75	l/ha	G										
					Mean =	.	81,3	.	.	76,3	.	.	90,0	5,0
6	Command CS	0,15	l/ha	A	102		80,0			90,0			90,0	0,0
	Venzar 500 SC	1	l/ha	A	205		75,0			80,0			90,0	10,0
	Betanal	1	l/ha	C	301		85,0			75,0			95,0	0,0
	Betanal	0,75	l/ha	E	404		85,0			90,0			90,0	0,0
	Betanal	0,75	l/ha	G										
					Mean =	.	81,3	.	.	83,8	.	.	91,3	2,5
7	Centium 36 CS	0,1	l/ha	A	106		90,0			80,0			90,0	85,0
	Proman	1	l/ha	A	202		85,0			80,0			95,0	80,0
	Betanal	1,5	l/ha	C	305		85,0			80,0			90,0	85,0
	Lentagran WP	0,5	kg/ha	E	403		90,0			90,0			95,0	85,0
	Lentagran WP	0,5	kg/ha	G										
					Mean =	.	87,5	.	.	82,5	.	.	92,5	83,8
8	Centium 36 CS	0,1	l/ha	A	101		85,0			90,0			95,0	90,0
	Proman	1	l/ha	A	206		80,0			85,0			95,0	85,0
	Betanal	1,5	l/ha	C	302		85,0			80,0			95,0	90,0
	Safari	0,05	l/ha	E	407		90,0			85,0			95,0	90,0
	Renol	0,1	l/ha	E										
	Safari	0,05	l/ha	G										
	Renol	0,1	l/ha	G										
					Mean =	.	85,0	.	.	85,0	.	.	95,0	88,8

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Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type	W Weed
Pest Code	
Pest Scientific Name	
Pest Name	
Crop Code	SPQOL
BBCH Scale	BVNH
Crop Name	Spinach
Description	
Part Rated	PLANT C
Rating Date	18-06-2018
Rating Type	PHYGEN
Rating Unit	percent
Sample Size, Unit	1 PLOT
Collection Basis, Unit	1 PLOT
Number of Subsamples	1
Crop Stage Majority	71
Crop Stage Minimum/Maximum	
Pest Stage Majority	
Pest Density, Unit	
Assessed By	LMA
Days After First/Last Applic.	56 31
Trt-Eval Interval	31 DA-G
ARM Action Codes	ET8

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	19
1	Untreated Check				103	0,0
					207	0,0
					304	0,0
					402	0,0
					Mean =	0,0
2	Centium 36 CS	0,2	l/ha	A	108	0,0
	Betanal	1,5	l/ha	C	204	10,0
	Betanal	1,0	l/ha	E	307	0,0
	Betanal	1,0	l/ha	G	405	10,0
					Mean =	5,0
3	Centium 36 CS	0,1	l/ha	A	105	5,0
	Betanal	1,5	l/ha	C	203	15,0
	Centium 36 CS	0,05	l/ha	C	308	10,0
	Betanal	1,0	l/ha	E	406	10,0
	Centium 36 CS	0,05	l/ha	E		
	Betanal	1,0	l/ha	G		
	Centium 36 CS	0,05	l/ha	G		
					Mean =	10,0
4	Centium 36 CS	0,1	l/ha	A	107	0,0
	Betanal	0,75	l/ha	B	201	0,0
	Centium 36 CS	0,05	l/ha	C	303	0,0
	Betanal	0,75	l/ha	C	408	0,0
	Betanal	0,5	l/ha	D		
	Centium 36 CS	0,05	l/ha	E		
	Betanal	0,5	l/ha	E		
	Betanal	0,5	l/ha	F		
	Betanal	0,5	l/ha	G		
	Centium 36 CS	0,05	l/ha	G		
					Mean =	0,0
5	Command CS	0,15	l/ha	A	104	0,0
	DFF	0,025	l/ha	A	208	0,0
	Betanal	1	l/ha	C	306	5,0
	Betanal	1	l/ha	E	401	0,0
	Betanal	0,75	l/ha	G		
					Mean =	1,3
6	Command CS	0,15	l/ha	A	102	0,0
	Venzar 500 SC	1	l/ha	A	205	0,0
	Betanal	1	l/ha	C	301	0,0
	Betanal	0,75	l/ha	E	404	0,0
	Betanal	0,75	l/ha	G		
					Mean =	0,0
7	Centium 36 CS	0,1	l/ha	A	106	80,0
	Proman	1	l/ha	A	202	65,0
	Betanal	1,5	l/ha	C	305	75,0
	Lentagran WP	0,5	kg/ha	E	403	75,0
	Lentagran WP	0,5	kg/ha	G		
					Mean =	73,8
8	Centium 36 CS	0,1	l/ha	A	101	80,0
	Proman	1	l/ha	A	206	70,0
	Betanal	1,5	l/ha	C	302	80,0
	Safari	0,05	l/ha	E	407	80,0
	Renol	0,1	l/ha	E		
	Safari	0,05	l/ha	G		
	Renol	0,1	l/ha	G		
					Mean =	77,5

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Trial ID:18-427-3 Protocol ID:
Location:Fyrendal Study Director:Peter Hartvig
Project ID:18-427-428 Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
CHEAL, Chenopodium album, Common lambsquarters = US
VERSS, Veronica sp., Speedwell = US
VIOAR, Viola arvensis, Field violet = US
POLCO, Fallopia convolvulus, Black bindweed = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
COUPLA = count - plant / emergence - objective
GROUND = groundcover
CONTRO = control / burndown or knockdown
Rating Unit
NUMBER = number

PLOT = total plot
m2 = square meter

PLOT = total plot
Crop Stage Majority
12 = 2nd true leaf unfolded
55 = First individual flowers of main inflorescence visible (still closed)
71 = First fruits formed
Crop Stage Minimum/Maximum
11 = 1st true leaf unfolded
13 = 3rd true leaf unfolded
Pest Stage Majority
55 = First individual flowers visible (still closed); G_Half of inflorescence emerged (middle of heading)
65 = Full flowering: 50% of flowers open, first petals may be fallen
35 = 5 visibly extended internode; G_5 node stage

PLA/m2 = plants per square meter
ARM Action Codes
ET8 = Excluded treatment 8
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff
Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**good
Initiation Date:09-05-2018

Trial Location

City: Flakkebjerg **Latitude of LL Corner °:**55,321095 N
State/Prov.: Slagelse **Longitude of LL Corner °:**11,400348 E
Postal Code:4200
Country:DNK Denmark
Conducted Under GEP: Yes

Objectives:

Screening af nye herbicider i spinat - toleranceforsøg

Conclusions:

Forsøget er udført i Flakkebjerg med henblik på tolerance screening i spinat med 15 forskellige ukrudtsbekæmpelsesmidler med to forskellige tidspunkter for udbringning af midlerne: A - lige efter såning og B - ved BBCH 12 af spinat. Behandling A blev udført den 9. maj, mens behandling B blev udført den 24. maj. Der blev udført skadesbedømmelser lige inden behandling B, og 6, 15, 26 og 63 dage efter behandling B (DA-B).

Der blev observeret, at densitet og vitalitet (*eng: crop vigor*) i spinat var svingende mellem parcellerne, muligvis på grund af tørke og forskel i jord, og det har påvirket skadebedømmelserne, især ved de to sidste skadesbedømmelser.

Midlerne, som blev anvendt lige efter såning har generelt ikke skadet spinaten. Ved den sidste bedømmelse blev der observeret nogle skader, i alle led med A behandling A (led 2-12;17,5 – 38,8% skade), men er ikke signifikant forskellig fra ubehandlet (0%), derfor vurderes det som ubetydelige skader. Forsøget er vandet regelmæssigt, men i perioden fra såning og til de første uger efter fremspiring var det i hovedsagen tørt, og dette kan muligvis have været medvirkende til det relativt lave skadesniveau.

Skadesbedømmelserne af led, som blev behandlet ved behandling B (led 13-36) har vist klare forskelle mellem skade af midlerne. Midlerne Lentagran WP (led 14), Belkar (led 20), MaisTer (led 22-23) har vist alvorlige skader på spinaten ved de sidste 2 bedømmelser 26 og 63 DA-B (53,8-90%).

Midlerne Pixxaro, DFF, Fenix, Boxer+Fenix, Proman, og Korveta har vist ret alvorlige skader ved tidlige bedømmelser i forsøgsperioden, men spinaten kunne generelt anses for at have kommet sig efter behandlingerne med herbiciderne. Til yderligere afklaring af dette er der behov for flere forsøg.

Midlerne Tanaris, Nortron og Cryptic synes at skade mindst blandt midlerne behandlet ved B sprøjtningen, og anses for at have potentiale i fremtidig ukrudtsbekæmpelse i spinat. I lighed med ovenstående gruppe af midler er der behov for yderligere forsøg for at kunne anvise en sikker anvendelse ved eventuel godkendelse i spinat.

Personnel

Study Director: Peter Hartvig **Title:**Study director
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Mobile No.:+4521423192
Investigator: Andrius Hansen Kemezys **Title:**Research project staff
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Mobile No.:+4526796484

Aarhus University, Department of Agroecology, Flakkebjerg

Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale:BVNH **Planting Date:**08-05-2018

Site and Design

Plot Width, Unit:1 m
Plot Length, Unit:1 m
Plot Area, Unit:1 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID: Investigator:Malthe Adserballe
Sponsor Contact:

Soil Description

% Sand:72 **% OM:**2,4 **Texture:**LS loamy sand
% Silt:14
% Clay:13

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 0,5 km

Application Description

	A	B
Application Date:	09-05-2018	24-05-2018
Time of Day:	11:20	13:40
Application Method:	SPRAY	SPRAY
Application Timing:	PSPE	ATGRST
Application Placement:	PLOT	PLOT
Applied By:	AHK, MOA	MOA, LMA
Air Temperature, Unit:	20 C	24,2 C
% Relative Humidity:	52	33,9
Wind Velocity, Unit:	23 MPS	34 MPS
Wind Direction:	E	ESE
Dew Presence (Y/N):		N no
Soil Temperature, Unit:	18,7 C	23,1 C
Soil Moisture:	WET	DRY
% Cloud Cover:	0	0
Next Rain Occurred On:	10-05-2018	26-05-2018

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	00	12
Stage Minimum, Percent:		10
Stage Maximum, Percent:		13

Application Equipment

	A	B
Appl. Equipment:	small plot	small plot
Equipment Type:	PSHCAP	PSHCAP
Operating Pressure, Unit:	2.0 BAR	2.0 BAR
Nozzle Type:	Hardi	Hardi
Nozzle Size:	EVS9405	EVS9405
Nozzles/Row:	1	1
Band Width, Unit:	100 cm	100 cm
Boom Length, Unit:	100 cm	100 cm
Boom Height, Unit:	45 cm	45 cm
Ground Speed, Unit:	36 KPH	36 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig

Trt No.	Type	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Appl Code	Appl Description
1	CHK							
2	HERB	Nortron SC		SC	0,23	l/ha	A	Lige efter såning
3	HERB	Nortron SC		SC	0,46	l/ha	A	Lige efter såning
4	HERB	MaisTer		SC	0,025	l/ha	A	Lige efter såning
	ADJ	MaisOil		SC	0,67	l/ha	A	Lige efter såning
5	HERB	MaisTer		SC	0,05	l/ha	A	Lige efter såning
	ADJ	MaisOil		SC	0,67	l/ha	A	Lige efter såning
6	HERB	Gallery		SC	0,075	l/ha	A	Lige efter såning
7	HERB	Gallery		SC	0,150	l/ha	A	Lige efter såning
8	HERB	Devrinol		SC	2,1	l/ha	A	Lige efter såning
9	HERB	Devrinol		SC	4,2	l/ha	A	Lige efter såning
10	HERB	Cryptic		SC	0,9	l/ha	A	Lige efter såning
11	HERB	Cryptic		SC	1,8	l/ha	A	Lige efter såning
12	HERB	Tanaris		SC	1,5	l/ha	A	Lige efter såning
13	HERB	Lentagran WP		WP	0,5	kg/ha	B	Spinat 2 løvblade
14	HERB	Lentagran WP		WP	1,0	kg/ha	B	Spinat 2 løvblade
15	HERB	Korveta		SC	0,125	l/ha	B	Spinat 2 løvblade
16	HERB	Korveta		SC	0,25	l/ha	B	Spinat 2 løvblade
17	HERB	Pixxaro EC		EC	0,1	l/ha	B	Spinat 2 løvblade
18	HERB	Pixxaro EC		EC	0,2	l/ha	B	Spinat 2 løvblade
19	HERB	Belkar		SC	0,125	l/ha	B	Spinat 2 løvblade
20	HERB	Belkar		SC	0,25	l/ha	B	Spinat 2 løvblade
21	HERB	Tanaris		SC	1,5	l/ha	B	Spinat 2 løvblade
22	HERB	MaisTer		SC	0,0125	l/ha	B	Spinat 2 løvblade
	ADJ	MaisOil		SC	0,67	l/ha	B	Spinat 2 løvblade
23	HERB	MaisTer		SC	0,025	l/ha	B	Spinat 2 løvblade
	ADJ	MaisOil		SC	0,67	l/ha	B	Spinat 2 løvblade
24	HERB	DFF		SC	0,05	l/ha	B	Spinat 2 løvblade
25	HERB	DFF		SC	0,1	l/ha	B	Spinat 2 løvblade
26	HERB	Fenix		SC	0,3	l/ha	B	Spinat 2 løvblade
27	HERB	Fenix		SC	0,6	l/ha	B	Spinat 2 løvblade
28	HERB	Fenix		SC	0,3	l/ha	B	Spinat 2 løvblade
	HERB	Boxer	800	EC	0,5	l/ha	B	Spinat 2 løvblade
29	HERB	Fenix		SC	0,3	l/ha	B	Spinat 2 løvblade
	HERB	Boxer	800	EC	1,0	l/ha	B	Spinat 2 løvblade
30	HERB	Nortron SC		SC	0,23	l/ha	B	Spinat 2 løvblade
31	HERB	Nortron SC		SC	0,46	l/ha	B	Spinat 2 løvblade
32	HERB	Cryptic		SC	0,9	l/ha	B	Spinat 2 løvblade
33	HERB	Proman		SC	0,5	l/ha	B	Spinat 2 løvblade
34	HERB	Proman		SC	1	l/ha	B	Spinat 2 løvblade
35	HERB	Proman		SC	2	l/ha	B	Spinat 2 løvblade
36	HERB	Proman		SC	0,5	l/ha	B	Spinat 2 løvblade
	HERB	Betanal		SC	1	l/ha	B	Spinat 2 løvblade

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 1 meters, Treated 'Plot' experimental unit size Length: 1 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
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9		
10		
11		
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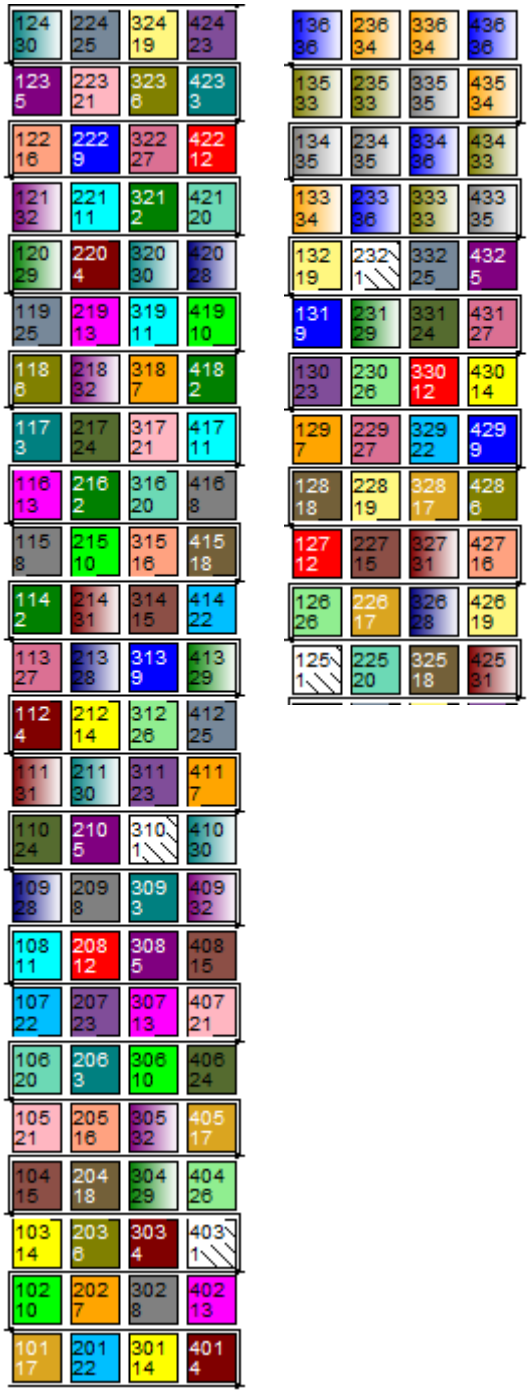

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code				SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale				BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name				Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description									Tilvækst	Nedvisning
Rating Date				23-05-2018	30-05-2018	08-06-2018	19-06-2018	26-07-2018	26-07-2018	26-07-2018
Rating Type				PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	BIOMAS	WILTIN
Rating Unit				%	%	%	%	%	%	%
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples				1	1	1	1	1	1	1
Crop Stage Majority				12	35	39		87	87	87
Crop Stage Minimum/Maximum				10 13				82 92	82 92	82 92
Assessed By				LMA	AHK	AHK	LMA	LMA	LMA	LMA
Days After First/Last Applic.				14 14	21 6	30 15	41 26	78 63	78 63	78 63
Trt-Eval Interval				-1 DA-B	6 DA-B	15 DA-B	26 DA-B	63 DA-B	63 DA-B	63 DA-B
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6	7
1					0,0b	0,0h	0,0h	0,0f	0,0c	72,5a	42,5a-f
2	Nortron SC	0,23	l/ha	A	1,3b	0,0h	7,5gh	5,0ef	30,0bc	67,5a	46,3a-f
3	Nortron SC	0,46	l/ha	A	0,0b	3,8h	7,5gh	5,0ef	28,8bc	62,5a	51,3a-e
4	MaisTer	0,025	l/ha	A	0,0b	0,0h	5,0gh	0,0f	27,5bc	62,5a	47,5a-f
	MaisOil	0,67	l/ha	A							
5	MaisTer	0,05	l/ha	A	0,0b	0,0h	0,0h	2,5f	27,5bc	65,0a	56,3ab
	MaisOil	0,67	l/ha	A							
6	Gallery	0,075	l/ha	A	0,0b	0,0h	0,0h	2,5f	17,5bc	78,8a	40,0a-f
7	Gallery	0,150	l/ha	A	1,3b	0,0h	7,5gh	11,3def	25,0bc	62,5a	46,3a-f
8	Devrinol	2,1	l/ha	A	2,5b	2,5h	2,5h	8,8def	38,8abc	47,5a	55,0abc
9	Devrinol	4,2	l/ha	A	0,0b	0,0h	5,0gh	3,8ef	21,3bc	75,0a	41,3a-f
10	Cryptic	0,9	l/ha	A	1,3b	0,0h	2,5h	2,5f	28,8bc	57,5a	60,0a
11	Cryptic	1,8	l/ha	A	0,0b	0,0h	0,0h	3,8ef	27,5bc	62,5a	50,0a-e
12	Tanaris	1,5	l/ha	A	10,0a	0,0h	6,3gh	8,8def	25,0bc	63,8a	48,8a-f
13	Lentagran WP	0,5	kg/ha	B		43,8bcd	28,8c-f	31,3b-e	38,8abc	53,8a	45,0a-f
14	Lentagran WP	1,0	kg/ha	B		90,0a	76,3a	77,5a	58,8ab	37,5a	28,3c-h
15	Korveta	0,125	l/ha	B		6,3h	33,8b-f	41,3bc	41,3abc	55,0a	30,0b-h
16	Korveta	0,25	l/ha	B		13,8fgh	41,3b-e	55,0b	55,0ab	52,5a	13,8ghi
17	Pixxaro EC	0,1	l/ha	B		18,8e-h	25,0def	18,8c-f	31,3abc	65,0a	43,8a-f
18	Pixxaro EC	0,2	l/ha	B		38,8bcd	47,5bc	48,8b	40,0abc	56,3a	27,5d-h
19	Belkar	0,125	l/ha	B		13,8fgh	42,5b-e	48,8b	53,8ab	55,0a	22,5f-i
20	Belkar	0,25	l/ha	B		30,0c-f	42,5b-e	55,0b	72,5a	33,8a	11,3hi
21	Tanaris	1,5	l/ha	B		10,0gh	17,5fgh	8,8def	35,0abc	62,5a	52,5a-d
22	MaisTer	0,0125	l/ha	B		38,8bcd	81,3a	78,8a	53,8ab	41,3a	13,8ghi
	MaisOil	0,67	l/ha	B							
23	MaisTer	0,025	l/ha	B		42,5bcd	87,5a	90,0a	58,8ab	40,0a	3,8i
	MaisOil	0,67	l/ha	B							
24	DFF	0,05	l/ha	B		25,0d-g	27,5def	13,8def	32,5abc	57,5a	51,3a-e
25	DFF	0,1	l/ha	B		36,3cd	26,3def	22,5c-f	36,3abc	60,0a	42,5a-f
26	Fenix	0,3	l/ha	B		30,0c-f	26,3def	25,0c-f	27,5bc	62,5a	36,3a-g
27	Fenix	0,6	l/ha	B		33,8cde	30,0c-f	26,3c-f	21,3bc	68,8a	36,3a-g
28	Fenix	0,3	l/ha	B		42,5bcd	31,3c-f	22,5c-f	42,5abc	52,5a	42,5a-f
	Boxer	0,5	l/ha	B							
29	Fenix	0,3	l/ha	B		56,3b	51,3b	51,3b	47,5ab	52,5a	30,0b-h
	Boxer	1,0	l/ha	B							
30	Nortron SC	0,23	l/ha	B		5,0h	5,0gh	3,8ef	20,0bc	72,5a	46,3a-f
31	Nortron SC	0,46	l/ha	B		8,8gh	22,5efg	11,3def	28,8bc	60,0a	40,0a-f
32	Cryptic	0,9	l/ha	B		0,0h	0,0h	0,0f	23,8bc	63,8a	50,0a-e
33	Proman	0,5	l/ha	B		45,0bc	30,0c-f	17,5c-f	12,5bc	75,0a	22,5f-i
34	Proman	1	l/ha	B		48,8bc	45,0bcd	35,0bcd	18,8bc	66,3a	25,0e-i
35	Proman	2	l/ha	B		85,0a	75,0a	50,0b	13,8bc	80,0a	7,5hi

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 7=4

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code			SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale			BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name			Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description								Tilvækst	Nedvisning
Rating Date			23-05-2018	30-05-2018	08-06-2018	19-06-2018	26-07-2018	26-07-2018	26-07-2018
Rating Type			PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	BIOMAS	WILTIN
Rating Unit			%	%	%	%	%	%	%
Sample Size, Unit			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples			1	1	1	1	1	1	1
Crop Stage Majority			12	35	39		87	87	87
Crop Stage Minimum/Maximum			10 13				82 92	82 92	82 92
Assessed By			LMA	AHK	AHK	LMA	LMA	LMA	LMA
Days After First/Last Applic.			14 14	21 6	30 15	41 26	78 63	78 63	78 63
Trt-Eval Interval			-1 DA-B	6 DA-B	15 DA-B	26 DA-B	63 DA-B	63 DA-B	63 DA-B
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4	5	6	7
36	Proman	0,5	l/ha	B		40,0bcd	37,5b-e	25,0c-f	23,8bc	72,5a	30,0b-h
	Betanal	1	l/ha	B							
LSD P=.05					4,22	11,56	11,58	15,16	23,75	24,71	14,28
Standard Deviation					2,93	8,24	8,26	10,81	16,94	17,62	10,18
CV					216,58	36,69	30,48	42,7	51,45	29,19	27,38
Levene's F					1,437	1,069	1,20	1,882	1,753	1,188	0,85
Levene's Prob(F)					0,199	0,385	0,236	0,007*	0,015*	0,249	0,703
Skewness					3,3631*	1,1217*	0,8556*	0,9319*	0,5426*	-0,1498	-0,1122
Kurtosis					12,4484*	0,6896	0,0301	-0,0757	-0,1532	-0,3202	-0,4369
Replicate F					1,837	0,418	6,874	2,355	0,721	1,487	5,414
Replicate Prob(F)					0,1597	0,7403	0,0003	0,0762	0,5413	0,2224	0,0017
Treatment F					3,760	34,856	36,096	20,997	3,181	1,597	8,293
Treatment Prob(F)					0,0015	0,0001	0,0001	0,0001	0,0001	0,0361	0,0001

Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Rating Type
PHYGEN = phytotoxicity - general / injury
BIOMAS = biomas
WILTIN = wilting
Rating Unit
% = percent

PLOT = total plot
Crop Stage Majority
12 = 2nd true leaf unfolded
35 = Leaf rosette at 50% of expected diameter. Main shoot at 50% of expected height
39 = Rosette development completed; Main shoot at expected height
87 = 70% of fruits ripe, or 70% of seeds of typical colour, dry and hard
Crop Stage Minimum/Maximum
10 = Cotyledons completely unfolded; growing point or true leaf initial visible
82 = 20% of fruits ripe, or 20% of seeds of typical colour, dry and hard
13 = 3rd true leaf unfolded
92 = Leaves and shoots beginning to discolour

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 7=4

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Crop Code					SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL		
BBCH Scale					BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH		
Crop Name					Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach		
Description										Tilvækst	Nedvisning		
Rating Date					23-05-2018	30-05-2018	08-06-2018	19-06-2018	26-07-2018	26-07-2018	26-07-2018		
Rating Type					PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	BIOMAS	WILTIN		
Rating Unit					%	%	%	%	%	%	%		
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT		
Number of Subsamples					1	1	1	1	1	1	1		
Crop Stage Majority					12	35	39		87	87	87		
Crop Stage Minimum/Maximum					10 13				82 92	82 92	82 92		
Assessed By					LMA	AHK	AHK	LMA	LMA	LMA	LMA		
Days After First/Last Applic.					14 14	21 6	30 15	41 26	78 63	78 63	78 63		
Trt-Eval Interval					-1 DA-B	6 DA-B	15 DA-B	26 DA-B	63 DA-B	63 DA-B	63 DA-B		
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6	7	
1					125	0,0	0,0	0,0	0,0	0,0	80,0	40,0	
					232	0,0	0,0	0,0	0,0	0,0	95,0	20,0	
					310	0,0	0,0	0,0	0,0	0,0	60,0	60,0	
					403	0,0	0,0	0,0	0,0	0,0	55,0	50,0	
					Mean =	0,0	0,0	0,0	0,0	0,0	72,5	42,5	
2	Nortron SC	0,23	l/ha	A	114	5,0	0,0	10,0	0,0	20,0	75,0	40,0	
					216	0,0	0,0	0,0	0,0	50,0	55,0	50,0	
					321	0,0	0,0	10,0	20,0	20,0	85,0	45,0	
					418	0,0	0,0	10,0	0,0	30,0	55,0	50,0	
					Mean =	1,3	0,0	7,5	5,0	30,0	67,5	46,3	
3	Nortron SC	0,46	l/ha	A	117	0,0	0,0	10,0	0,0	20,0	75,0	45,0	
					206	0,0	0,0	10,0	10,0	35,0	60,0	50,0	
					309	0,0	0,0	0,0	0,0	40,0	45,0	70,0	
					423	0,0	15,0	10,0	10,0	20,0	70,0	40,0	
					Mean =	0,0	3,8	7,5	5,0	28,8	62,5	51,3	
4	MaisTer	0,025	l/ha	A	112	0,0	0,0	20,0	0,0	35,0	60,0	50,0	
	MaisOil	0,67	l/ha	A	220	0,0	0,0	0,0	0,0	30,0	60,0	40,0	
					303	0,0	0,0	0,0	0,0	30,0	50,0	65,0	
					401	0,0	0,0	0,0	0,0	15,0	80,0	35,0	
					Mean =	0,0	0,0	5,0	0,0	27,5	62,5	47,5	
5	MaisTer	0,05	l/ha	A	123	0,0	0,0	0,0	0,0	0,0	100,0	40,0	
	MaisOil	0,67	l/ha	A	210	0,0	0,0	0,0	10,0	45,0	45,0	55,0	
					308	0,0	0,0	0,0	0,0	45,0	40,0	70,0	
					432	0,0	0,0	0,0	0,0	20,0	75,0	60,0	
					Mean =	0,0	0,0	0,0	2,5	27,5	65,0	56,3	
6	Gallery	0,075	l/ha	A	118	0,0	0,0	0,0	0,0	10,0	85,0	40,0	
					203	0,0	0,0	0,0	10,0	30,0	60,0	45,0	
					323	0,0	0,0	0,0	0,0	15,0	85,0	45,0	
					428	0,0	0,0	0,0	0,0	15,0	85,0	30,0	
					Mean =	0,0	0,0	0,0	2,5	17,5	78,8	40,0	
7	Gallery	0,150	l/ha	A	129	0,0	0,0	0,0	0,0	25,0	65,0	40,0	
					202	0,0	0,0	0,0	0,0	0,0	75,0	45,0	
					318	0,0	0,0	0,0	15,0	15,0	80,0	55,0	
					411	5,0	0,0	30,0	30,0	60,0	30,0	45,0	
					Mean =	1,3	0,0	7,5	11,3	25,0	62,5	46,3	
8	Devrinol	2,1	l/ha	A	115	10,0	10,0	10,0	0,0	25,0	65,0	35,0	
					209	0,0	0,0	0,0	15,0	50,0	40,0	65,0	
					302	0,0	0,0	0,0	0,0	35,0	45,0	60,0	
					416	0,0	0,0	0,0	20,0	45,0	40,0	60,0	
					Mean =	2,5	2,5	2,5	8,8	38,8	47,5	55,0	
9	Devrinol	4,2	l/ha	A	131	0,0	0,0	0,0	0,0	15,0	85,0	30,0	
					222	0,0	0,0	0,0	0,0	25,0	70,0	40,0	
					313	0,0	0,0	20,0	15,0	30,0	60,0	60,0	
					429	0,0	0,0	0,0	0,0	15,0	85,0	35,0	
					Mean =	0,0	0,0	5,0	3,8	21,3	75,0	41,3	
10	Cryptic	0,9	l/ha	A	102	0,0	0,0	0,0	0,0	0,0	80,0	50,0	
					215	0,0	0,0	10,0	10,0	40,0	55,0	50,0	
					306	0,0	0,0	0,0	0,0	40,0	45,0	70,0	
					419	5,0	0,0	0,0	0,0	35,0	50,0	70,0	
					Mean =	1,3	0,0	2,5	2,5	28,8	57,5	60,0	
11	Cryptic	1,8	l/ha	A	108	0,0	0,0	0,0	0,0	50,0	40,0	55,0	
					221	0,0	0,0	0,0	15,0	25,0	70,0	35,0	
					319	0,0	0,0	0,0	0,0	5,0	90,0	50,0	
					417	0,0	0,0	0,0	0,0	30,0	50,0	60,0	
					Mean =	0,0	0,0	0,0	3,8	27,5	62,5	50,0	
12	Tanaris	1,5	l/ha	A	127	10,0	0,0	0,0	0,0	15,0	65,0	35,0	
					208	0,0	0,0	10,0	20,0	45,0	45,0	65,0	
					330	10,0	0,0	0,0	0,0	10,0	90,0	40,0	
					422	20,0	0,0	15,0	15,0	30,0	55,0	55,0	
					Mean =	10,0	0,0	6,3	8,8	25,0	63,8	48,8	
13	Lentagran WP	0,5	kg/ha	B	116		70,0	45,0	45,0	45,0	50,0	30,0	
					219		35,0	10,0	15,0	35,0	50,0	45,0	
					307		35,0	30,0	50,0	65,0	40,0	70,0	
					402		35,0	30,0	15,0	10,0	75,0	35,0	
					Mean =	.	43,8	28,8	31,3	38,8	53,8	45,0	
14	Lentagran WP	1,0	kg/ha	B	103		90,0	95,0	95,0	100,0	0,0		
					212		90,0	75,0	65,0	55,0	40,0	20,0	
					301		90,0	75,0	85,0	70,0	30,0	40,0	
					430		90,0	60,0	65,0	10,0	80,0	25,0	
					Mean =	.	90,0	76,3	77,5	58,8	37,5	28,3	
15	Korveta	0,125	l/ha	B	104		10,0	35,0	40,0	60,0	40,0	30,0	
					227		10,0	20,0	35,0	25,0	70,0	15,0	
					314		5,0	35,0	55,0	40,0	55,0	30,0	
					408		0,0	45,0	35,0	40,0	55,0	45,0	
					Mean =	.	6,3	33,8	41,3	41,3	55,0	30,0	
16	Korveta	0,25	l/ha	B	122		15,0	40,0	50,0	60,0	55,0	20,0	
					205		20,0	40,0	50,0	45,0	45,0	10,0	
					315		20,0	40,0	60,0	60,0	45,0	5,0	
					427		0,0	45,0	60,0	55,0	65,0	20,0	
					Mean =	.	13,8	41,3	55,0	55,0	52,5	13,8	
17	Pixxaro EC	0,1	l/ha	B	101		10,0	30,0	10,0	50,0	50,0	70,0	
					226		30,0	20,0	15,0	20,0	75,0	25,0	
					328		10,0	20,0	20,0	25,0	75,0	40,0	
					405		25,0	30,0	30,0	30,0	60,0	40,0	
					Mean =	.	18,8	25,0	18,8	31,3	65,0	43,8	

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Crop Code					SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale					BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH
Crop Name					Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach
Description										Tilvækst	Nedvisning
Rating Date					23-05-2018	30-05-2018	08-06-2018	19-06-2018	26-07-2018	26-07-2018	26-07-2018
Rating Type					PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	BIOMAS	WILTIN
Rating Unit					%	%	%	%	%	%	%
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples					1	1	1	1	1	1	1
Crop Stage Majority					12	35	39		87	87	87
Crop Stage Minimum/Maximum					10 13				82 92	82 92	82 92
Assessed By					LMA	AHK	AHK	LMA	LMA	LMA	LMA
Days After First/Last Applic.					14 14	21 6	30 15	41 26	78 63	78 63	78 63
Trt-Eval Interval					-1 DA-B	6 DA-B	15 DA-B	26 DA-B	63 DA-B	63 DA-B	63 DA-B
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6	7
18	Pixxaro EC	0,2	l/ha	B	128		40,0	45,0	45,0	30,0	60,0	5,0
					204		30,0	35,0	50,0	50,0	55,0	25,0
					325		40,0	40,0	35,0	10,0	80,0	40,0
					415		45,0	70,0	65,0	70,0	30,0	40,0
					Mean =	.	38,8	47,5	48,8	40,0	56,3	27,5
19	Belkar	0,125	l/ha	B	132		10,0	40,0	50,0	60,0	40,0	20,0
					228		15,0	40,0	50,0	60,0	50,0	15,0
					324		15,0	45,0	45,0	50,0	70,0	25,0
					426		15,0	45,0	50,0	45,0	60,0	30,0
					Mean =	.	13,8	42,5	48,8	53,8	55,0	22,5
20	Belkar	0,25	l/ha	B	106		20,0	50,0	60,0	80,0	30,0	20,0
					225		35,0	35,0	50,0	70,0	35,0	10,0
					316		30,0	40,0	50,0	70,0	40,0	5,0
					421		35,0	45,0	60,0	70,0	30,0	10,0
					Mean =	.	30,0	42,5	55,0	72,5	33,8	11,3
21	Tanaris	1,5	l/ha	B	105		10,0	30,0	20,0	60,0	35,0	50,0
					223		10,0	10,0	0,0	25,0	75,0	40,0
					317		10,0	0,0	0,0	10,0	90,0	50,0
					407		10,0	30,0	15,0	45,0	50,0	70,0
					Mean =	.	10,0	17,5	8,8	35,0	62,5	52,5
22	MaisTer	0,0125	l/ha	B	107		40,0	80,0	80,0	60,0	35,0	10,0
	MaisOil	0,67	l/ha	B	201		35,0	80,0	75,0	40,0	45,0	10,0
					329		30,0	85,0	90,0	40,0	60,0	5,0
					414		50,0	80,0	70,0	75,0	25,0	30,0
					Mean =	.	38,8	81,3	78,8	53,8	41,3	13,8
23	MaisTer	0,025	l/ha	B	130		45,0	85,0	90,0	45,0	40,0	0,0
	MaisOil	0,67	l/ha	B	207		60,0	85,0	90,0	60,0	30,0	0,0
					311		40,0	90,0	90,0	70,0	50,0	10,0
					424		25,0	90,0	90,0	60,0	40,0	5,0
					Mean =	.	42,5	87,5	90,0	58,8	40,0	3,8
24	DFF	0,05	l/ha	B	110		25,0	30,0	20,0	40,0	55,0	45,0
					217		25,0	30,0	20,0	45,0	45,0	70,0
					331		25,0	20,0	0,0	10,0	80,0	40,0
					406		25,0	30,0	15,0	35,0	50,0	50,0
					Mean =	.	25,0	27,5	13,8	32,5	57,5	51,3
25	DFF	0,1	l/ha	B	119		30,0	10,0	0,0	15,0	85,0	45,0
					224		30,0	20,0	10,0	30,0	60,0	45,0
					332		25,0	25,0	20,0	25,0	70,0	40,0
					412		60,0	50,0	60,0	75,0	25,0	40,0
					Mean =	.	36,3	26,3	22,5	36,3	60,0	42,5
26	Fenix	0,3	l/ha	B	126		35,0	30,0	40,0	25,0	60,0	30,0
					230		30,0	25,0	20,0	25,0	65,0	40,0
					312		30,0	30,0	30,0	25,0	70,0	40,0
					404		25,0	20,0	10,0	35,0	55,0	35,0
					Mean =	.	30,0	26,3	25,0	27,5	62,5	36,3
27	Fenix	0,6	l/ha	B	113		40,0	30,0	40,0	30,0	55,0	30,0
					229		30,0	30,0	25,0	20,0	70,0	35,0
					322		30,0	30,0	20,0	20,0	75,0	40,0
					431		35,0	30,0	20,0	15,0	75,0	40,0
					Mean =	.	33,8	30,0	26,3	21,3	68,8	36,3
28	Fenix	0,3	l/ha	B	109		55,0	35,0	30,0	60,0	35,0	45,0
	Boxer	0,5	l/ha	B	213		50,0	30,0	20,0	60,0	40,0	45,0
					326		40,0	30,0	10,0	20,0	75,0	40,0
					420		25,0	30,0	30,0	30,0	60,0	40,0
					Mean =	.	42,5	31,3	22,5	42,5	52,5	42,5
29	Fenix	0,3	l/ha	B	120		50,0	40,0	45,0	25,0	80,0	25,0
	Boxer	1,0	l/ha	B	231		50,0	45,0	30,0	15,0	80,0	25,0
					304		50,0	50,0	55,0	70,0	30,0	40,0
					413		75,0	70,0	75,0	80,0	20,0	30,0
					Mean =	.	56,3	51,3	51,3	47,5	52,5	30,0
30	Nortron SC	0,23	l/ha	B	124		0,0	0,0	0,0	0,0	100,0	30,0
					211		10,0	0,0	0,0	30,0	60,0	40,0
					320		0,0	10,0	0,0	10,0	85,0	50,0
					410		10,0	10,0	15,0	40,0	45,0	65,0
					Mean =	.	5,0	5,0	3,8	20,0	72,5	46,3
31	Nortron SC	0,46	l/ha	B	111		10,0	30,0	10,0	40,0	50,0	50,0
					214		15,0	20,0	15,0	35,0	50,0	35,0
					327		10,0	20,0	0,0	10,0	80,0	35,0
					425		0,0	20,0	20,0	30,0	60,0	40,0
					Mean =	.	8,8	22,5	11,3	28,8	60,0	40,0
32	Cryptic	0,9	l/ha	B	121		0,0	0,0	0,0	0,0	100,0	40,0
					218		0,0	0,0	0,0	30,0	55,0	40,0
					305		0,0	0,0	0,0	30,0	50,0	60,0
					409		0,0	0,0	0,0	35,0	50,0	60,0
					Mean =	.	0,0	0,0	0,0	23,8	63,8	50,0
33	Proman	0,5	l/ha	B	135		40,0	30,0	0,0	10,0	60,0	30,0
					235		40,0	20,0	20,0	25,0	75,0	20,0
					333		35,0	40,0	35,0	0,0	90,0	20,0
					434		65,0	30,0	15,0	15,0	75,0	20,0
					Mean =	.	45,0	30,0	17,5	12,5	75,0	22,5
34	Proman	1	l/ha	B	133		40,0	35,0	25,0	20,0	45,0	20,0
					236		40,0	35,0	25,0	15,0	80,0	25,0
					336		75,0	40,0	30,0	20,0	70,0	30,0
					435		40,0	70,0	60,0	20,0	70,0	25,0
					Mean =	.	48,8	45,0	35,0	18,8	66,3	25,0

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Screening af nye herbicider i spinat - toleranceforsøg

Trial ID:18-430 Protocol ID:18-430
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID: Investigator:Malthe Adserballe
Sponsor Contact:

Crop Code					SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL	SPQOL			
BBCH Scale					BVNH	BVNH	BVNH	BVNH	BVNH	BVNH	BVNH			
Crop Name					Spinach	Spinach	Spinach	Spinach	Spinach	Spinach	Spinach			
Description										Tilvækst	Nedvisning			
Rating Date					23-05-2018	30-05-2018	08-06-2018	19-06-2018	26-07-2018	26-07-2018	26-07-2018			
Rating Type					PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	BIOMAS	WILTIN			
Rating Unit					%	%	%	%	%	%	%			
Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT			
Number of Subsamples					1	1	1	1	1	1	1			
Crop Stage Majority					12	35	39		87	87	87			
Crop Stage Minimum/Maximum					10 13				82 92	82 92	82 92			
Assessed By					LMA	AHK	AHK	LMA	LMA	LMA	LMA			
Days After First/Last Applic.					14 14	21 6	30 15	41 26	78 63	78 63	78 63			
Trt-Eval Interval					-1 DA-B	6 DA-B	15 DA-B	26 DA-B	63 DA-B	63 DA-B	63 DA-B			
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6	7		
35	Proman		2l/ha	B	134		90,0	70,0	40,0	20,0	75,0	10,0		
					234		65,0	60,0	30,0	0,0	90,0	5,0		
					335		90,0	80,0	60,0	15,0	80,0	10,0		
					433		95,0	90,0	70,0	20,0	75,0	5,0		
					Mean =	.	85,0	75,0	50,0	13,8	80,0	7,5		
36	Proman		0,5l/ha	B	136		50,0	40,0	30,0	30,0	70,0	35,0		
	Betanal		1l/ha	B	233		40,0	30,0	20,0	10,0	90,0	15,0		
					334		35,0	30,0	20,0	25,0	70,0	35,0		
					436		35,0	50,0	30,0	30,0	60,0	35,0		
					Mean =	.	40,0	37,5	25,0	23,8	72,5	30,0		

Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Rating Type
PHYGEN = phytotoxicity - general / injury
BIOMAS = biomas
WILTIN = wilting
Rating Unit
% = percent

PLOT = total plot
Crop Stage Majority
12 = 2nd true leaf unfolded
35 = Leaf rosette at 50% of expected diameter. Main shoot at 50% of expected height
39 = Rosette development completed; Main shoot at expected height
87 = 70% of fruits ripe, or 70% of seeds of typical colour, dry and hard
Crop Stage Minimum/Maximum
10 = Cotyledons completely unfolded; growing point or true leaf initial visible
82 = 20% of fruits ripe, or 20% of seeds of typical colour, dry and hard
13 = 3rd true leaf unfolded
92 = Leaves and shoots beginning to discolour

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Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff

Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**good
Initiation Date:05-07-2018

Trial Location

City: Flakkebjerg **Latitude of LL Corner °:**55,321095 N
State/Prov.: Slagelse **Longitude of LL Corner °:**11,400348 E
Postal Code:4200
Country:DNK Denmark

Conducted Under GEP: Yes

Objectives:

Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Conclusions:

Forsøget blev udført i Flakkebjerg med henblik på tolerance screening i spinat med Safari i forskellige doseringer, som split behandling, og med eller uden penetreringsolien Renol. Forsøget blev udført som direkte følge af, at det blev konstateret, at der i strategiforsøgene var anvendt en forkert dosering af Safari. Behandling A blev udført den 5 juli ved BBCH 12 af spinat, mens behandling B blev udført 8 dage senere ved BBCH 12-13 af spinat. Skade på spinat blev bedømt ved behandling B, og 7, 19 og 42 dage efter behandling B (DA-B).

Der blev observeret svag dosis respons, hvor den laveste dosering har forårsaget mindst skade på spinat, og hvor den højeste dosering resulterede i de største skader. Skader af den laveste dosering af Safari (0,0025 kg/ha + Renol, led 2) kan anses for at være acceptable, sammen med led 7 (0,01 kg/ha Safari uden Renol). Alle andre led har forårsaget ret alvorlige skader på spinat, og anses for ikke at være egnet i ukrudtsstrategier i spinat. Split behandling har hellere ikke vist sig til at være en mulighed.

Personnel

Study Director: Peter Hartvig **Title:**Study director
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Investigator: Andrius Hansen Kemezys **Title:**Research project staff
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Location: Slagelse
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Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale:BVNH **Planting Date:**19-06-2018

Site and Design

Plot Width, Unit:1 m
Plot Length, Unit:1 m
Plot Area, Unit:1 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

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Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Soil Description

% Sand:72 **% OM:**2,4 **Texture:**LS loamy sand
% Silt:14
% Clay:13

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 0,5 km

Application Description

	A	B
Application Date:	05-07-2018	13-07-2018
Time of Day:	9:15	13:45
Application Method:	SPRAY	SPRAY
Application Timing:	BBCH 11-1	6-8 DA A
Application Placement:	PLOT	PLOT
Applied By:	ahk/lma	ahk/lma
Air Temperature, Unit:	16,1 C	26,6 C
% Relative Humidity:	76,4	33,8
Wind Velocity, Unit:	1 MPS	12 KPH
Wind Direction:	W	W
Dew Presence (Y/N):	N no	N no
Soil Temperature, Unit:	18,7 C	23,7 C
Soil Moisture:	NORMAL	SLIDRY
% Cloud Cover:	100	0
Next Rain Occurred On:	10-07-2018	17-07-2018

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	12	12-13

Application Equipment

	A	B
Appl. Equipment:	small plot	small plot
Equipment Type:	PSHCAP	PSHCAP
Operating Pressure, Unit:	2.0 BAR	2.0 BAR
Nozzle Type:	Hardi	Hardi
Nozzle Size:	EVS9405	EVS9405
Nozzles/Row:	1	1
Band Width, Unit:	100 cm	100 cm
Boom Length, Unit:	100 cm	100 cm
Boom Height, Unit:	45 cm	45 cm
Ground Speed, Unit:	36 KPH	36 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha

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Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Type	Treatment Name	Rate	Rate Unit	Appl Code
1	CHK	Untreated Weed-Free Check			
2	HERB	Safari	0,0025	kg/ha	A
	ADJ	Renol	0,5	l/ha	A
3	HERB	Safari	0,005	kg/ha	A
	ADJ	Renol	0,5	l/ha	A
4	HERB	Safari	0,01	kg/ha	A
	ADJ	Renol	0,5	l/ha	A
5	HERB	Safari	0,02	kg/ha	A
	ADJ	Renol	0,5	l/ha	A
6	HERB	Safari	0,04	kg/ha	A
	ADJ	Renol	0,5	l/ha	A
7	HERB	Safari	0,01	kg/ha	A
8	HERB	Safari	0,005	kg/ha	A B
	ADJ	Renol	0,5	l/ha	A B

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 1 meters, Treated 'Plot' experimental unit size Length: 1 meters, Application volume: 200 L/ha, Mix size: 0.08 L, Format definitions: G-All7.def, G-All7.frm

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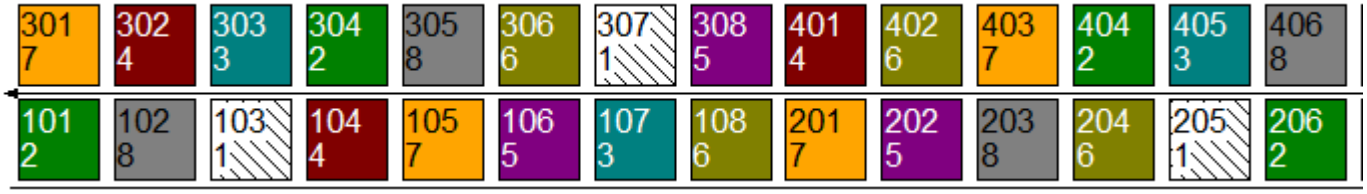
Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		



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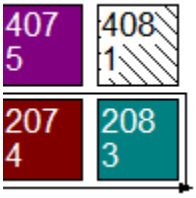

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Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Crop Code				SPQOL	SPQOL	SPQOL	SPQOL
BBCH Scale				BVNH	BVNH	BVNH	BVNH
Crop Name				Spinach	Spinach	Spinach	Spinach
Part Rated				PLANT C	PLANT C	PLANT C	PLANT C
Rating Date				13-07-2018	20-07-2018	01-08-2018	24-08-2018
Rating Type				PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit				percent	percent	percent	percent
Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples				1	1	1	1
Crop Stage Majority				12-13			71
Assessed By				LMA	LMA	LMA	AHK
Days After First/Last Applic.				8 8	15 7	27 19	50 42
Trt-Eval Interval				0 DA-B	7 DA-B	19 DA-B	42 DA-B
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	1	2	3	4
1	Untreated Weed-Free Check				0,0d	0,0d	0,0e	0,0c
2	Safari	0,0025	kg/ha	A	27,5c	18,8c	21,3d	6,3c
	Renol	0,5	l/ha	A				
3	Safari	0,005	kg/ha	A	67,5a	61,3b	56,3bc	40,0ab
	Renol	0,5	l/ha	A				
4	Safari	0,01	kg/ha	A	68,8a	52,5b	45,0c	22,5bc
	Renol	0,5	l/ha	A				
5	Safari	0,02	kg/ha	A	70,0a	67,5b	65,0b	35,0ab
	Renol	0,5	l/ha	A				
6	Safari	0,04	kg/ha	A	82,5a	87,5a	83,8a	52,5a
	Renol	0,5	l/ha	A				
7	Safari	0,01	kg/ha	A	47,5b	22,5c	30,0d	7,5c
8	Safari	0,005	kg/ha	A B	16,3c	62,5b	80,0a	38,8ab
	Renol	0,5	l/ha	A B				
LSD P=.05					12,61	16,27	12,37	20,26
Standard Deviation					8,57	11,07	8,41	13,77
CV					18,05	23,77	17,65	54,42
Levene's F					2,557	5,438	3,132	0,753
Levene's Prob(F)					0,041*	0,001*	0,017*	0,631
Skewness					-0,3008	-0,2805	-0,1947	0,3217
Kurtosis					-1,3354	-1,2222	-1,1642	-0,8254
Replicate F					4,960	4,193	2,456	0,752
Replicate Prob(F)					0,0093	0,0179	0,0913	0,5334
Treatment F					48,316	28,648	48,567	7,706
Treatment Prob(F)					0,0001	0,0001	0,0001	0,0001

Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
C = Crop is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury

PLOT = total plot
Crop Stage Majority
71 = First fruits formed

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.

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Ukrudtsbekæmpelse i spinat til frø - tolerance screening af Safari

Trial ID:18-425 Protocol ID:
Location:Flakkebjerg Study Director:
Project ID: Investigator:Andrius Hansen Kemezys
Sponsor Contact:

Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	1	2	3	4
	Crop Code					SPQOL	SPQOL	SPQOL	SPQOL
	BBCH Scale					BVNH	BVNH	BVNH	BVNH
	Crop Name					Spinach	Spinach	Spinach	Spinach
	Part Rated					PLANT C	PLANT C	PLANT C	PLANT C
	Rating Date					13-07-2018	20-07-2018	01-08-2018	24-08-2018
	Rating Type					PHYGEN	PHYGEN	PHYGEN	PHYGEN
	Rating Unit					percent	percent	percent	percent
	Sample Size, Unit					1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Number of Subsamples					1	1	1	1
	Crop Stage Majority					12-13			71
	Assessed By					LMA	LMA	LMA	AHK
	Days After First/Last Applic.					8 8	15 7	27 19	50 42
	Trt-Eval Interval					0 DA-B	7 DA-B	19 DA-B	42 DA-B
1	Untreated Weed-Free Check				103	0,0	0,0	0,0	0,0
					205	0,0	0,0	0,0	0,0
					307	0,0	0,0	0,0	0,0
					408	0,0	0,0	0,0	0,0
					Mean =	0,0	0,0	0,0	0,0
2	Safari	0,0025	kg/ha	A	101	20,0	0,0	20,0	10,0
	Renol	0,5	l/ha	A	206	20,0	25,0	15,0	15,0
					304	45,0	45,0	30,0	0,0
					404	25,0	5,0	20,0	0,0
					Mean =	27,5	18,8	21,3	6,3
3	Safari	0,005	kg/ha	A	107	65,0	50,0	60,0	30,0
	Renol	0,5	l/ha	A	208	75,0	75,0	50,0	30,0
					303	80,0	75,0	60,0	50,0
					405	50,0	45,0	55,0	50,0
					Mean =	67,5	61,3	56,3	40,0
4	Safari	0,01	kg/ha	A	104	60,0	40,0	30,0	25,0
	Renol	0,5	l/ha	A	207	80,0	60,0	50,0	20,0
					302	85,0	80,0	70,0	45,0
					401	50,0	30,0	30,0	0,0
					Mean =	68,8	52,5	45,0	22,5
5	Safari	0,02	kg/ha	A	106	70,0	60,0	55,0	30,0
	Renol	0,5	l/ha	A	202	80,0	70,0	65,0	20,0
					308	70,0	70,0	80,0	60,0
					407	60,0	70,0	60,0	30,0
					Mean =	70,0	67,5	65,0	35,0
6	Safari	0,04	kg/ha	A	108	80,0	95,0	95,0	75,0
	Renol	0,5	l/ha	A	204	80,0	85,0	85,0	50,0
					306	90,0	90,0	85,0	55,0
					402	80,0	80,0	70,0	30,0
					Mean =	82,5	87,5	83,8	52,5
7	Safari	0,01	kg/ha	A	105	55,0	10,0	25,0	0,0
					201	40,0	30,0	30,0	0,0
					301	60,0	30,0	30,0	0,0
					403	35,0	20,0	35,0	30,0
					Mean =	47,5	22,5	30,0	7,5
8	Safari	0,005	kg/ha	A B	102	25,0	70,0	80,0	40,0
	Renol	0,5	l/ha	A B	203	20,0	55,0	80,0	30,0
					305	10,0	60,0	80,0	35,0
					406	10,0	65,0	80,0	50,0
					Mean =	16,3	62,5	80,0	38,8

Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
Part Rated
PLANT = plant
C = Crop is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury

PLOT = total plot
Crop Stage Majority
71 = First fruits formed

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Aarhus University, Department of Agroecology, Flakkebjerg

Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff

Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**good
Initiation Date:20-04-2018

Trial Location

City: Flakkebjerg **Latitude of LL Corner °:**55,321339 N
State/Prov.: Slagelse **Longitude of LL Corner °:**11,398488 E
Postal Code:4200
Country:DNK Denmark

Objectives:

Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Conclusions:

Forsøget er udført i Flakkebjerg med to afgrøder: spinat og pak choi sået ved siden af hindanden. Forsøget blev sprøjtet med A behandling, nedharvet lige inden såning den 20. april. Der blev sået samme dag, og B behandling blev udført umiddelbart efter. Forsøget blev bedømt for effekt 49 dage efter behandling (49 DA-A). Skade bedømmelser blev udført 33, 49 og 59 DA-A separat for hver afgrøde.

Tre forskellige ukrudtsarter blev bedømt ved effektregistrering: CAPBP (*Capsella bursa-pastoris*; da: hyrdetaske), POLCO (*Fallopia convolvulus*; da: snerlepileurt), VIOAR (*Viola arvensis*; da: agerstedmoder) samt en bedømmelse på andet tokimbladet ukrudt (BBBBB).

Alle behandlinger synes at vise ret god effekt overfor POLCO, moderat effekt overfor BBBBB og lav effekt overfor VIOAR. Led 2 og 5 viste lav effekt overfor CAPBP (33,8-41,3% effekt), mens alle led med Centium ved behandling B viste god effekt (80-90%). Devrinol behandlingen inden såning synes at have lav effekt overfor CAPBP, og Centium viste har ikke at forbedret effekten overfor denne ukrudtsart.

Skadesbedømmelserne viste næsten ingen, eller ubetydelig skade på både pak choi og spinat. Devrinol og Centium kan derfor betragtes som sikre midler overfor spinat og pak choi i dette forsøg.

Personnel

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Investigator: Andrius Hansen Kemezys **Title:**Research project staff
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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Description

Crop 1: SPQOL Spinacia oleracea Spinach
BBCH Scale:BVNH

Crop 2: BRSCH Brassica rapa chinensis Chinese chard
Description: Pak choi
BBCH Scale:BVHF

Pest Description

Pest 1 Type: W **Code:**CAPBP Capsella bursa-pastoris
Common Name: Shepherd's purse

Pest 2 Type: W **Code:**POLCO Fallopia convolvulus
Common Name: Black bindweed

Pest 3 Type: W **Code:**VIOAR Viola arvensis
Common Name: Field violet

Pest 4 Type: W **Code:**BBBBB Broad-leaved plants
Common Name: Broad-leaved plants

Site and Design

Plot Width, Unit:2,5 m
Plot Length, Unit:10 m
Plot Area, Unit:25 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Treatment Name
1.	25-05-2018	Karate
2.	08-06-2018	Mospilan

Soil Description

% Sand:72 **% OM:**2,4 **Texture:**LS loamy sand
% Silt:14
% Clay:13

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 0,5 km

Application Description

	A	B
Application Date:	20-04-2018	20-04-2018
Time of Day:	12:30	16:15
Application Method:	SPRAY	SPRAY
Application Timing:	PSINCR	PSPE
Application Placement:	SOIL	SOIL
Applied By:	AHK	AHK
Air Temperature, Unit:	18 C	24,5 C
% Relative Humidity:	56	53,5
Wind Velocity, Unit:	5 MPS	3 MPS
Wind Direction:	SW	SW
Soil Temperature, Unit:	16 C	19,5 C
Soil Moisture:	DRY	DRY
Next Rain Occurred On:	24-04-2018	24-04-2018

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Stage At Each Application

	A	B
Crop 1 Code, BBCH Scale:	SPQOL BVNH	SPQOL BVNH
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	00	00
Crop 2 Code, BBCH Scale:	BRSCH BVHF	BRSCH BVHF
Stage Scale Used:	BBCH	BBCH
Stage Majority, Percent:	00	00

Pest Stage At Each Application

	A	B
Pest 1 Code, Type, Scale:	CAPBP W	CAPBP W
Pest 2 Code, Type, Scale:	POLCO W	POLCO W
Pest 3 Code, Type, Scale:	VIOAR W	VIOAR W
Pest 4 Code, Type, Scale:	BBBBB W	BBBBB W

Application Equipment

	A	B
Appl. Equipment:	Green spraye	Green spraye
Equipment Type:	SPRBIC	SPRBIC
Operating Pressure, Unit:	2.1 BAR	2.1 BAR
Nozzle Type:	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm
Nozzles/Row:	5	5
Boom Length, Unit:	2.5 m	2.5 m
Boom Height, Unit:	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters

Date	By	Notes
18-06-2018	LMA	Der er observeret mekanisk skade på afrøder, muligvis stammer fra fuglerne. Derfor var skadebedømmelse svær at udføre.

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig

Trt No.	Type	Treatment Name	Form Type	Rate	Rate Unit	Appl Code	Appl Description
1	CHK						
2	HERB	Devrinol	CS	2,1	l/ha	A	Nedharves før såning
3	HERB	Centium 36 CS	CS	0,2	l/ha	B	Lige efter såning
4	HERB	Centium 36 CS	CS	0,2	l/ha	B	Lige efter såning
	HERB	Stomp CS	CS	1,0	l/ha	B	Lige efter såning
5	HERB	Centium 36 CS	CS	0,2	l/ha	A	Nedharves før såning
	HERB	Devrinol	CS	2,1	l/ha	A	Nedharves før såning
6	HERB	Centium 36 CS	CS	0,2	l/ha	B	Lige efter såning
	HERB	Devrinol	CS	2,1	l/ha	B	Lige efter såning
7	HERB	Devrinol	CS	2,1	l/ha	A	Nedharves før såning
	HERB	Centium 36 CS	CS	0,2	l/ha	B	Lige efter såning

Replications: 4, Untreated treatments: 1, Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2,5 meters, Treated 'Plot' experimental unit size Length: 10 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type			W Weed	W Weed	W Weed	W Weed			
Pest Code			CAPBP	POLCO	VIOAR	BBBBB			
Pest Scientific Name			Capsella bursa>	Fallopia convo>	Viola arvensis	Broad-leaved p>			
Pest Name			Shepherd's pur>	Black bindweed	Field violet	Broad-leaved p>			
Crop Code							SPQOL	BRSCH	SPQOL
BBCH Scale							BVNH	BVHF	BVNH
Crop Name							Spinach	Chinese chard	Spinach
Description						Andet 2kim		Pak Choi	Dampet
Part Rated			PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C
Rating Date			08-06-2018	08-06-2018	08-06-2018	08-06-2018	03-05-2018	03-05-2018	23-05-2018
Rating Type			CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN	PHYGEN	PHYGEN
Rating Unit			percent	percent	percent	percent	percent	percent	percent
Sample Size, Unit			1 PLO	1 PLO	1 PLO	1 PLO	1 plot	1 plot	1 plot
Collection Basis, Unit			1 PLO	1 PLO	1 PLO	1 PLO	1 plot	1 plot	1 plot
Number of Subsamples			1	1	1	1	1	1	1
Crop Stage Majority			55-69	55-69	55-69	55-69			
Pest Stage Majority			65	65	65				
Pest Density, Unit			16 PLA/m2	3 PLA/m2	5 PLA/m2	8 PLA/m2			
Assessed By			AHK	AHK	AHK	AHK	LMA	LMA	LMA
Days After First/Last Applic.			49 49	49 49	49 49	49 49	13 13	13 13	33 33
Trt-Eval Interval			49 DA-A	49 DA-A	49 DA-A	49 DA-A	13 DA-A	13 DA-A	33 DA-A
ARM Action Codes			EC	EC	EC	EC			
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	9	12	15	18	1	2	3
1					0,0	0,0	0,0	0,0	0,0a	0,0a	0,0a
2	Devrinol	2,1	l/ha	A	41,3b	85,0a	10,0a	66,3a	0,0a	0,0a	0,0a
3	Centium 36 CS	0,2	l/ha	B	82,3a	73,3a	27,5a	46,3a	0,0a	0,0a	0,0a
4	Centium 36 CS	0,2	l/ha	B	80,0a	63,3a	20,0a	63,8a	0,0a	0,0a	12,5a
	Stomp CS	1,0	l/ha	B							
5	Centium 36 CS	0,2	l/ha	A	33,8b	60,0a	10,0a	43,8a	0,0a	0,0a	2,5a
	Devrinol	2,1	l/ha	A							
6	Centium 36 CS	0,2	l/ha	B	87,3a	81,7a	0,0a	71,3a	0,0a	0,0a	2,5a
	Devrinol	2,1	l/ha	B							
7	Devrinol	2,1	l/ha	A	90,8a	83,3a	12,5a	80,0a	0,0a	0,0a	3,8a
	Centium 36 CS	0,2	l/ha	B							
LSD P=.05					31,69	53,34	34,62	40,52	.	.	7,98
Standard Deviation					21,03	29,32	22,97	26,88	0,00	0,00	5,37
CV					30,39	39,39	172,3	43,45	0,0	0,0	176,99
Levene's F					0,391	1,005	1,476	1,09	0,00	0,00	1,603
Levene's Prob(F)					0,848	0,455	0,246	0,399	.	.	0,196
Skewness					-1,0103*	-2,2422*	1,1093*	-1,0193*	.	.	3,2313*
Kurtosis					0,3805	4,4652*	-0,6043	0,4475	.	.	12,557*
Replicate F					1,080	1,960	0,653	0,601	0,000	0,000	0,856
Replicate Prob(F)					0,3876	0,1914	0,5936	0,6242	1,0000	1,0000	0,4818
Treatment F					5,635	0,402	0,676	1,120	0,000	0,000	2,732
Treatment Prob(F)					0,0040	0,8369	0,6483	0,3914	1,0000	1,0000	0,0457

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 12=3
Could not calculate LSD (% mean diff) for columns 1,2 because error mean square = 0.

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type					W Weed	W Weed		
Pest Code								
Pest Scientific Name								
Pest Name								
Crop Code	SPQOL	BRSCH	BBBBB	SPQOL	BRSCH	SPQOL	SPQOL	
BBCH Scale	BVNH	BVHF	BDIC	BVNH	BVHF	BVNH	BVNH	
Crop Name	Spinach	Chinese chard	Broad-leaved p>	Spinach	Chinese chard	Spinach	Spinach	
Description	Ikke dampet	Pak Choi, damp>	Pak Choi,ikke >		Pak Choi	Dampet	Ikke dampet	
Part Rated	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	
Rating Date	23-05-2018	23-05-2018	23-05-2018	08-06-2018	08-06-2018	18-06-2018	18-06-2018	
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	
Rating Unit	percent	percent	percent	percent	percent	percent	percent	
Sample Size, Unit	1 plot	1 plot	1 plot	1 PLOT	1 PLOT	1 plot	1 plot	
Collection Basis, Unit	1 plot	1 plot	1 plot	1 PLOT	1 PLOT	1 plot	1 plot	
Number of Subsamples	1	1	1	1	1	1	1	
Crop Stage Majority				55	69			
Pest Stage Majority								
Pest Density, Unit								
Assessed By	LMA	LMA	LMA	AHK	AHK	LMA	LMA	
Days After First/Last Applic.	33 33	33 33	33 33	49 49	49 49	59 59	59 59	
Trt-Eval Interval	33 DA-A	33 DA-A	33 DA-A	49 DA-A	49 DA-A	59 DA-A	59 DA-A	
ARM Action Codes								

Trt No.	Treatment Name	Rate	Unit	Appl Code	4	5	6	19	20	21	22
1					0,0a	0,0b	0,0a	0,0a	0,0a	0,0a	0,0a
2	Devrinol	2,1	l/ha	A	2,5a	5,0ab	6,3a	2,5a	5,0a	0,0a	5,0a
3	Centium 36 CS	0,2	l/ha	B	2,5a	6,3ab	8,8a	5,0a	5,0a	0,0a	6,3a
4	Centium 36 CS	0,2	l/ha	B	8,8a	2,5b	1,3a	12,5a	11,3a	5,0a	7,5a
	Stomp CS	1,0	l/ha	B							
5	Centium 36 CS	0,2	l/ha	A	6,3a	12,5a	10,0a	17,5a	18,8a	5,0a	12,5a
	Devrinol	2,1	l/ha	A							
6	Centium 36 CS	0,2	l/ha	B	6,3a	1,3b	11,3a	2,5a	7,5a	0,0a	7,5a
	Devrinol	2,1	l/ha	B							
7	Devrinol	2,1	l/ha	A	8,8a	13,8a	16,3a	10,0a	16,3a	0,0a	10,0a
	Centium 36 CS	0,2	l/ha	B							
LSD P=.05					8,29	6,91	14,28	11,84	14,71	7,25	12,16
Standard Deviation					5,58	4,65	9,61	7,97	9,90	4,88	8,18
CV					111,63	78,92	125,16	111,55	108,71	341,57	117,5
Levene's F					5,40	3,31	0,977	3,40	1,373	0,833	0,845
Levene's Prob(F)					0,002*	0,019*	0,465	0,017*	0,271	0,558	0,55
Skewness					1,1945*	1,2634*	1,0055*	1,2104*	0,9506*	3,5196*	1,0986*
Kurtosis					0,7672	0,9724	-0,4445	0,6386	-0,2957	11,1834*	0,7596
Replicate F					1,758	4,115	0,835	1,350	1,588	2,400	1,187
Replicate Prob(F)					0,1912	0,0218	0,4923	0,2897	0,2271	0,1016	0,3428
Treatment F					1,471	5,367	1,408	2,550	1,822	1,000	0,929
Treatment Prob(F)					0,2434	0,0025	0,2652	0,0577	0,1512	0,4552	0,4980

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type					
Pest Code					
Pest Scientific Name					
Pest Name					
Crop Code				BRSCH	BRSCH
BBCH Scale				BVHF	BVHF
Crop Name				Chinese chard	Chinese chard
Description				Pak Choi, damp>	Pak Choi,ikke >
Part Rated				PLANT C	PLANT C
Rating Date				18-06-2018	18-06-2018
Rating Type				PHYGEN	PHYGEN
Rating Unit				percent	percent
Sample Size, Unit				1 plot	1 plot
Collection Basis, Unit				1 plot	1 plot
Number of Subsamples				1	1
Crop Stage Majority					
Pest Stage Majority					
Pest Density, Unit					
Assessed By				LMA	LMA
Days After First/Last Applic.				59 59	59 59
Trt-Eval Interval				59 DA-A	59 DA-A
ARM Action Codes					
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	23	24
1					0,0a	0,0a
2	Devrinol	2,1	l/ha	A	0,0a	0,0a
3	Centium 36 CS	0,2	l/ha	B	2,5a	5,0a
4	Centium 36 CS	0,2	l/ha	B	0,0a	0,0a
	Stomp CS	1,0	l/ha	B		
5	Centium 36 CS	0,2	l/ha	A	0,0a	2,5a
	Devrinol	2,1	l/ha	A		
6	Centium 36 CS	0,2	l/ha	B	0,0a	0,0a
	Devrinol	2,1	l/ha	B		
7	Devrinol	2,1	l/ha	A	0,0a	0,0a
	Centium 36 CS	0,2	l/ha	B		
LSD P=.05					2,81	5,84
Standard Deviation					1,89	3,93
CV					529,15	367,17
Levene's F					1,00	0,867
Levene's Prob(F)					0,451	0,535
Skewness					5,2915*	4,1261*
Kurtosis					28,0*	17,4011*
Replicate F					1,000	2,077
Replicate Prob(F)					0,4155	0,1391
Treatment F					1,000	1,000
Treatment Prob(F)					0,4552	0,4552

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
CAPBP, Capsella bursa-pastoris, Shepherd's purse = IE
POLCO, Fallopia convolvulus, Black bindweed = IE
VIOAR, Viola arvensis, Field violet = US
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
BRSCH, BVHF, Brassica rapa chinensis, Chinese chard = US
BBBBB, BDIC, Broad-leaved plants, Broad-leaved plants = US
Part Rated
PLANT = plant
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury

plot = total plot

plot = total plot
Pest Stage Majority
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type												W Weed	W Weed	W Weed	W Weed
Pest Code												CAPBP	CAPBP	CAPBP	POLCO
Pest Scientific Name												Capsella bursa>	Capsella bursa>	Capsella bursa>	Fallopia convo>
Pest Name												Shepherd's pur>	Shepherd's pur>	Shepherd's pur>	Black bindweed
Crop Code						SPQOL	BRSCH	SPQOL	SPQOL	BRSCH	BBBBB				
BBCH Scale						BVNH	BVHF	BVNH	BVNH	BVHF	BDIC				
Crop Name						Spinach	Chinese chard	Spinach	Spinach	Chinese chard	Broad-leaved p>				
Description							Pak Choi	Dampet	Ikke dampet	Pak Choi, damp>	Pak Choi,ikke >				
Part Rated						PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date						03-05-2018	03-05-2018	23-05-2018	23-05-2018	23-05-2018	23-05-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018
Rating Type						PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	COUPLA	GROUND	CONTRO	COUPLA
Rating Unit						percent	percent	percent	percent	percent	percent	NUMBER	percent	percent	NUMBER
Sample Size, Unit						1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 m2	1 PLO	1 PLO	1 m2
Collection Basis, Unit						1 plot	1 plot	1 plot	1 plot	1 plot	1 plot	1 PLO	1 PLO	1 PLO	1 PLO
Number of Subsamples						1	1	1	1	1	1	1	1	1	1
Crop Stage Majority												55-69	55-69	55-69	55-69
Pest Stage Majority												65	65	65	65
Pest Density, Unit														16 PLA/m2	
Assessed By						LMA	LMA	LMA	LMA	LMA	LMA	AHK	AHK	AHK	AHK
Days After First/Last Applic.						13 13	13 13	33 33	33 33	33 33	33 33	49 49	49 49	49 49	49 49
Trt-Eval Interval						13 DA-A	13 DA-A	33 DA-A	33 DA-A	33 DA-A	33 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A
ARM Action Codes														EC	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6	7	8	9	10
1					102	0,0	0,0	0,0	0,0	0,0	0,0	20,0	25,0	0,0	5,0
					204	0,0	0,0	0,0	0,0	0,0	0,0	20,0	40,0	0,0	4,0
					307	0,0	0,0	0,0	0,0	0,0	0,0	3,0	2,0	0,0	3,0
					405	0,0	0,0	0,0	0,0	0,0	0,0	20,0	40,0	0,0	0,0
					Mean =	0,0	0,0	0,0	0,0	0,0	0,0	15,8	26,8	0,0	3,0
2	Devrinol	2,1	l/ha	A	104	0,0	0,0	0,0	5,0	10,0	25,0			85,0	
					207	0,0	0,0	0,0	5,0	5,0	0,0			40,0	
					303	0,0	0,0	0,0	0,0	0,0	0,0			0,0	
					401	0,0	0,0	0,0	0,0	5,0	0,0			40,0	
					Mean =	0,0	0,0	0,0	2,5	5,0	6,3	.	.	41,3	.
3	Centium 36 CS	0,2	l/ha	B	103	0,0	0,0	0,0	0,0	10,0	30,0			80,0	
					206	0,0	0,0	0,0	5,0	0,0	0,0			90,0	
					301	0,0	0,0	0,0	0,0	10,0	0,0			60,0	
					407	0,0	0,0	0,0	5,0	5,0	5,0			99,0	
					Mean =	0,0	0,0	0,0	2,5	6,3	8,8	.	.	82,3	.
4	Centium 36 CS	0,2	l/ha	B	106	0,0	0,0	30,0	20,0	5,0	0,0			95,0	
	Stomp CS	1,0	l/ha	B	202	0,0	0,0	5,0	0,0	5,0	0,0			70,0	
					304	0,0	0,0	10,0	15,0	0,0	0,0			95,0	
					402	0,0	0,0	5,0	0,0	0,0	5,0			60,0	
					Mean =	0,0	0,0	12,5	8,8	2,5	1,3	.	.	80,0	.
5	Centium 36 CS	0,2	l/ha	A	101	0,0	0,0	10,0	5,0	25,0	15,0			40,0	
	Devrinol	2,1	l/ha	A	203	0,0	0,0	0,0	10,0	10,0	5,0			45,0	
					305	0,0	0,0	0,0	10,0	15,0	20,0			50,0	
					403	0,0	0,0	0,0	0,0	0,0	0,0			0,0	
					Mean =	0,0	0,0	2,5	6,3	12,5	10,0	.	.	33,8	.
6	Centium 36 CS	0,2	l/ha	B	107	0,0	0,0	0,0	10,0	5,0	10,0			99,0	
	Devrinol	2,1	l/ha	B	205	0,0	0,0	5,0	10,0	0,0	15,0			85,0	
					302	0,0	0,0	0,0	0,0	0,0	0,0			70,0	
					406	0,0	0,0	5,0	5,0	0,0	20,0			95,0	
					Mean =	0,0	0,0	2,5	6,3	1,3	11,3	.	.	87,3	.
7	Devrinol	2,1	l/ha	A	105	0,0	0,0	0,0	20,0	20,0	5,0			95,0	
	Centium 36 CS	0,2	l/ha	B	201	0,0	0,0	0,0	10,0	5,0	10,0			70,0	
					306	0,0	0,0	10,0	0,0	20,0	25,0			100,0	
					404	0,0	0,0	5,0	5,0	10,0	25,0			98,0	
					Mean =	0,0	0,0	3,8	8,8	13,8	16,3	.	.	90,8	.

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Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

				11	12	13	14	15	16	17	18	19	20
Pest Type				W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code				POLCO	POLCO	VIOAR	VIOAR	VIOAR	BBBBB	BBBBB	BBBBB		
Pest Scientific Name				Fallopia convo>	Fallopia convo>	Viola arvensis	Viola arvensis	Viola arvensis	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>		
Pest Name				Black bindweed	Black bindweed	Field violet	Field violet	Field violet	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>		
Crop Code												SPQOL	BRSCH
BBCH Scale												BVNH	BVHF
Crop Name												Spinach	Chinese chard
Description									Andet 2kim	Andet 2kim	Andet 2kim		Pak Choi
Part Rated				PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C
Rating Date				08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018	08-06-2018
Rating Type				GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	PHYGEN	PHYGEN
Rating Unit				percent	percent	NUMBER	percent	percent	NUMBER	percent	percent	percent	percent
Sample Size, Unit				1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 m2	1 PLO	1 PLO	1 PLOT	1 PLOT
Collection Basis, Unit				1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLO	1 PLOT	1 PLOT
Number of Subsamples				1	1	1	1	1	1	1	1	1	1
Crop Stage Majority				55-69	55-69	55-69	55-69	55-69	55-69	55-69	55-69	55	69
Pest Stage Majority				65	65	65	65	65					
Pest Density, Unit					3 PLA/m2			5 PLA/m2			8 PLA/m2		
Assessed By				AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.				49 49	49 49	49 49	49 49	49 49	49 49	49 49	49 49	49 49	49 49
Trt-Eval Interval				49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A	49 DA-A
ARM Action Codes					EC			EC			EC		
Trt No. Treatment Name	Rate Unit	Appl Code	Plot	11	12	13	14	15	16	17	18	19	20
1			102	4,0	0,0	1,0	1,0	0,0	7,0	5,0	0,0	0,0	0,0
			204	3,0	0,0	7,0	4,0	0,0	7,0	5,0	0,0	0,0	0,0
			307	2,0	0,0	5,0	3,0	0,0	7,0	5,0	0,0	0,0	0,0
			405	0,0		7,0	4,0	0,0	10,0	8,0	0,0	0,0	0,0
			Mean =	2,3	0,0	5,0	3,0	0,0	7,8	5,8	0,0	0,0	0,0
2 Devrinol	2,1 l/ha	A	104		90,0			0,0			85,0	0,0	0,0
			207		75,0			0,0			40,0	0,0	0,0
			303		90,0			0,0			70,0	0,0	0,0
			401					40,0			70,0	10,0	20,0
			Mean =	.	85,0	.	.	10,0	.	.	66,3	2,5	5,0
3 Centium 36 CS	0,2 l/ha	B	103		80,0			0,0			70,0	10,0	5,0
			206		70,0			0,0			75,0	0,0	5,0
			301		70,0			50,0			40,0	10,0	10,0
			407					60,0			0,0	0,0	0,0
			Mean =	.	73,3	.	.	27,5	.	.	46,3	5,0	5,0
4 Centium 36 CS	0,2 l/ha	B	106		0,0			40,0			90,0	30,0	30,0
Stomp CS	1,0 l/ha	B	202		90,0			40,0			40,0	0,0	15,0
			304		100,0			0,0			85,0	20,0	0,0
			402					0,0			40,0	0,0	0,0
			Mean =	.	63,3	.	.	20,0	.	.	63,8	12,5	11,3
5 Centium 36 CS	0,2 l/ha	A	101		0,0			0,0			0,0	20,0	35,0
Devrinol	2,1 l/ha	A	203		80,0			0,0			75,0	0,0	20,0
			305		100,0			0,0			40,0	30,0	20,0
			403					40,0			60,0	20,0	0,0
			Mean =	.	60,0	.	.	10,0	.	.	43,8	17,5	18,8
6 Centium 36 CS	0,2 l/ha	B	107		85,0			0,0			90,0	0,0	10,0
Devrinol	2,1 l/ha	B	205		80,0			0,0			85,0	10,0	20,0
			302		80,0			0,0			70,0	0,0	0,0
			406					0,0			40,0	0,0	0,0
			Mean =	.	81,7	.	.	0,0	.	.	71,3	2,5	7,5
7 Devrinol	2,1 l/ha	A	105		80,0			0,0			85,0	10,0	30,0
Centium 36 CS	0,2 l/ha	B	201		80,0			50,0			60,0	10,0	5,0
			306		90,0			0,0			85,0	10,0	10,0
			404					0,0			90,0	10,0	20,0
			Mean =	.	83,3	.	.	12,5	.	.	80,0	10,0	16,3

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type								
Pest Code								
Pest Scientific Name								
Pest Name								
Crop Code					SPQOL	SPQOL	BRSCH	BRSCH
BBCH Scale					BVNH	BVNH	BVHF	BVHF
Crop Name					Spinach	Spinach	Chinese chard	Chinese chard
Description					Dampet	Ikke dampet	Pak Choi, damp>	Pak Choi,ikke >
Part Rated					PLANT C	PLANT C	PLANT C	PLANT C
Rating Date					18-06-2018	18-06-2018	18-06-2018	18-06-2018
Rating Type					PHYGEN	PHYGEN	PHYGEN	PHYGEN
Rating Unit					percent	percent	percent	percent
Sample Size, Unit					1 plot	1 plot	1 plot	1 plot
Collection Basis, Unit					1 plot	1 plot	1 plot	1 plot
Number of Subsamples					1	1	1	1
Crop Stage Majority								
Pest Stage Majority								
Pest Density, Unit								
Assessed By					LMA	LMA	LMA	LMA
Days After First/Last Applic.					59 59	59 59	59 59	59 59
Trt-Eval Interval					59 DA-A	59 DA-A	59 DA-A	59 DA-A
ARM Action Codes								
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code / Plot	21	22	23	24
1				102	0,0	0,0	0,0	0,0
				204	0,0	0,0	0,0	0,0
				307	0,0	0,0	0,0	0,0
				405	0,0	0,0	0,0	0,0
				Mean =	0,0	0,0	0,0	0,0
2	Devrinol	2,1	l/ha	A 104	0,0	10,0	0,0	0,0
				207	0,0	0,0	0,0	0,0
				303	0,0	0,0	0,0	0,0
				401	0,0	10,0	0,0	0,0
				Mean =	0,0	5,0	0,0	0,0
3	Centium 36 CS	0,2	l/ha	B 103	0,0	0,0	10,0	20,0
				206	0,0	5,0	0,0	0,0
				301	0,0	20,0	0,0	0,0
				407	0,0	0,0	0,0	0,0
				Mean =	0,0	6,3	2,5	5,0
4	Centium 36 CS	0,2	l/ha	B 106	20,0	10,0	0,0	0,0
	Stomp CS	1,0	l/ha	B 202	0,0	0,0	0,0	0,0
				304	0,0	15,0	0,0	0,0
				402	0,0	5,0	0,0	0,0
				Mean =	5,0	7,5	0,0	0,0
5	Centium 36 CS	0,2	l/ha	A 101	20,0	30,0	0,0	10,0
	Devrinol	2,1	l/ha	A 203	0,0	0,0	0,0	0,0
				305	0,0	10,0	0,0	0,0
				403	0,0	10,0	0,0	0,0
				Mean =	5,0	12,5	0,0	2,5
6	Centium 36 CS	0,2	l/ha	B 107	0,0	0,0	0,0	0,0
	Devrinol	2,1	l/ha	B 205	0,0	10,0	0,0	0,0
				302	0,0	0,0	0,0	0,0
				406	0,0	20,0	0,0	0,0
				Mean =	0,0	7,5	0,0	0,0
7	Devrinol	2,1	l/ha	A 105	0,0	20,0	0,0	0,0
	Centium 36 CS	0,2	l/ha	B 201	0,0	0,0	0,0	0,0
				306	0,0	10,0	0,0	0,0
				404	0,0	10,0	0,0	0,0
				Mean =	0,0	10,0	0,0	0,0

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Ukrudtsbekæmpelse i spinat og pak choi til frø - afprøvning af Devrinol og Centium kombinationer

Trial ID:18-429 Protocol ID:18-429
Location:Flakkebjerg Study Director:Peter Hartvig
Project ID:18-429 Investigator:Malthe Adserballe
Sponsor Contact:

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
CAPBP, Capsella bursa-pastoris, Shepherd's purse = IE
POLCO, Fallopia convolvulus, Black bindweed = IE
VIOAR, Viola arvensis, Field violet = US
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
SPQOL, BVNH, Spinacia oleracea, Spinach = US
BRSCH, BVHF, Brassica rapa chinensis, Chinese chard = US
BBBBB, BDIC, Broad-leaved plants, Broad-leaved plants = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
COUPLA = count - plant / emergence - objective
GROUND = groundcover
CONTRO = control / burndown or knockdown
Rating Unit
NUMBER = number

plot = total plot
m2 = square meter

plot = total plot
Crop Stage Majority
55 = First individual flowers of main inflorescence visible (still closed)
69 = End of flowering
Pest Stage Majority
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Research project staff

Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**high
Initiation Date:24-04-2018

Trial Location

City:Høve **Latitude of LL Corner °:**55,277843 N
State/Prov.: Dalmose **Longitude of LL Corner °:**11,400227 E
Postal Code:4261
Country:DNK Denmark

Conducted Under GEP: Yes

	Guideline	Description
1.	PP 1/99(3)	Weeds in root vegetables

Objectives:

Hovedformål: At afprøve forskellige strategier til ukrudtsbekæmpelse i pak choi til frø
Delformål: At afprøve Korveta og Belkar i kombination med Boxer på forskellige udviklingstrin af pak choi

Conclusions:

Forsøget blev udført i Høve, ca 5 km syd for Flakkebjerg. Forsøget blev bedømt for effekt den 30. maj, 15 dage efter D sprøjtning (15 DA-D) og der blev bedømt skade på pak choi ved B, C og D sprøjtningerne og 15, 31 og 42 DA-D.

Fire forskellige ukrudtsarter blev bedømt ved effektregistrering: CHEAL (*Chenopodium album*; da: hvidmelet gåsefod), THLAR (*Thlaspi arvense*; da: almindelig pengeurt), TRFSS (*Trifolium sp.*; da: kløver), POLCO (*Fallopia convolvulus*; da: snerlepileurt) og en bedømmelse på andet tokimbladet ukrudt (BBBBB). Der var høj ukrudtsdensitet af CHEAL og TRFSS, mens der var moderat ukrudtsdensitet af THLAR og POLCO.

Led 2 viste lavest effekt overfor CHEAL, TRFSS, POLCO og BBBBB (32,5-57,5%, signifikant lavere end alle andre led) som viser, at Command CS med to efterfølgende Boxer sprøjtninger ikke har været tilstrækkelig. Alle andre led har vist god effekt overfor disse ukrudtsarter. Led 3 viste lavest effekt overfor THLAR (86,3%), mens led 8 viste højest effekt (94,8%, signifikant forskel mellem de to led).

Alle led har vist ret store skader på pak choi ved C og D sprøjtningerne, men pak choi kunne komme sig, og observerede skader på pak choi kunne anses for at være acceptable.

Personnel

Study Director: Peter Hartvig **Title:**Study director
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Investigator: Andrius Hansen Kemezys **Title:**Research project staff
Affiliation: Aarhus University, Department of Agroecology
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Mobile No.:+4526796484

Crop Description

Crop 1: BRSSS Brassica sp. Brassica sp.
Variety: Pak Choi
BBCH Scale:BDIC **Planting Date:**21-04-2018

Aarhus University, Department of Agroecology, Flakkebjerg

Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Description

Pest 1 Type: W **Code:**THLAR Thlaspi arvense
Common Name: Fanweed

Pest 2 Type: W **Code:**CHEAL Chenopodium album
Common Name: Common lambsquarters

Pest 3 Type: W **Code:**TRFSS Trifolium sp.
Common Name: Clover

Pest 4 Type: W **Code:**POLCO Fallopia convolvulus
Common Name: Black bindweed

Pest 5 Type: W **Code:**BBBBB Broad-leaved plants
Common Name: Broad-leaved plants

Site and Design

Plot Width, Unit:2,5 m
Plot Length, Unit:10 m
Plot Area, Unit:25 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Soil Description

% Sand:70 **% OM:**2,5 **Texture:**FSL fine sandy loam
% Silt:17 **pH:**6,5
% Clay:13

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 5 km

Application Description

	A	B	C	D
Application Date:	24-04-2018	03-05-2018	09-05-2018	15-05-2018
Time of Day:	11:00	9:00	9:45	8:30
Application Method:	SPRAY	SPRAY	SPRAY	SPRAY
Application Timing:	PSPE	ATGRST	FIINSP	FIINSP
Application Placement:	PLOT	PLOT	PLOT	PLOT
Applied By:	MOA	AHK	AHK	AHK
Air Temperature, Unit:	13,6 C	11,6 C	19,9 C	18,5 C
% Relative Humidity:	75,7	86,0	64,4	58,0
Wind Velocity, Unit:	5,75 MPS	4,0 MPS	0 MPS	0 MPS
Wind Direction:	WSW	SW	0	0
Dew Presence (Y/N):	N no	N no	N no	N no
Soil Temperature, Unit:	11,5 C	9,2 C	14,8 C	15,6 C
Soil Moisture:	SLIWET	SLIWET	VERDRY	VERDRY
% Cloud Cover:	85	100	0	0
Next Rain Occurred On:	25-04-2018	05-05-2018	10-05-2018	26-05-2018

Crop Stage At Each Application

	A	B	C	D
Crop 1 Code, BBCH Scale:	BRSSS BDIC	BRSSS BDIC	BRSSS BDIC	BRSSS BDIC
Stage Scale Used:	BBCH	BBCH	BBCH	BBCH
Stage Majority, Percent:	07	10	10-12	14

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Stage At Each Application

	A	B	C	D
Pest 1 Code, Type, Scale:	THLAR W	THLAR W	THLAR W	THLAR W
Stage Majority, Percent:			10-12	
Density, Unit:			7,5 PLA/m2	
Pest 2 Code, Type, Scale:	CHEAL W	CHEAL W	CHEAL W	CHEAL W
Stage Majority, Percent:		9-10	10	
Density, Unit:		3 PLA/m2	20 PLA/m2	
Pest 3 Code, Type, Scale:	TRFSS W	TRFSS W	TRFSS W	TRFSS W
Pest 4 Code, Type, Scale:	POLCO W	POLCO W	POLCO W	POLCO W
Stage Majority, Percent:		9-10	10-11	
Density, Unit:		3 PLA/m2	4 PLA/m2	
Pest 5 Code, Type, Scale:	BBBBB W	BBBBB W	BBBBB W	BBBBB W
Stage Majority, Percent:	07-09	9-10	10	
Density, Unit:	15 PLA/m2	30 PLA/m2	5 PLA/m2	

Application Equipment

	A	B	C	D
Appl. Equipment:	Black spraye	Black spraye	Black spraye	Black spraye
Equipment Type:	SPRBIC	SPRBIC	SPRBIC	SPRBIC
Operating Pressure, Unit:	1.9 BAR	1.9 BAR	19 BAR	19 BAR
Nozzle Type:	Hardi	Hardi	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm	50 cm	50 cm
Nozzles/Row:	5	5	5	5
Boom Length, Unit:	2.5 m	2.5 m	25 m	25 m
Boom Height, Unit:	50 cm	50 cm	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters	4 liters	4 liters

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Trt No.	Type	Treatment Name	Form Type	Description	Rate	Rate Unit	Appl Code	Appl Description
1	CHK	Untreated Check		not treated				
2	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Boxer	CS		1,0	l/ha	C	5-7 dage senere
3	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Galera	CS		0,3	l/ha	C	5-7 dage senere
	HERB	PG 26N	CS		0,3	l/ha	C	5-7 dage senere
	HERB	Boxer	CS		1,0	l/ha	D	6-8 dage senere
4	HERB	Command CS	CS		0,1	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Command CS	CS		0,05	l/ha	B	Kim-½ løvblad
	HERB	Galera	CS		0,3	l/ha	C	5-7 dage senere
	HERB	PG 26N	CS		0,3	l/ha	C	5-7 dage senere
	HERB	Boxer	CS		1,0	l/ha	D	6-8 dage senere
	HERB	Command CS	CS		0,1	l/ha	D	6-8 dage senere
5	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Korveta (GF-3488)	CS		0,5	l/ha	C	5-7 dage senere
	HERB	Boxer	CS		1,0	l/ha	D	6-8 dage senere
6	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Boxer	CS		1,0	l/ha	C	5-7 dage senere
	HERB	Korveta (GF-3488)	CS		0,5	l/ha	D	6-8 dage senere
7	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Belkar	CS		0,25	l/ha	C	5-7 dage senere
	HERB	Boxer	CS		1,0	l/ha	D	6-8 dage senere
8	HERB	Command CS	CS		0,2	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	B	Kim-½ løvblad
	HERB	Boxer	CS		1,0	l/ha	C	5-7 dage senere
	HERB	Belkar	CS		0,25	l/ha	D	6-8 dage senere

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2,5 meters, Treated 'Plot' experimental unit size Length: 10 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type				W Weed		W Weed		W Weed	W Weed		W Weed		W Weed
Pest Code				THLAR		CHEAL		TRFSS	POLCO		BBBBB		
Pest Scientific Name				Thlaspi arvense		Chenopodium al>		Trifolium sp.	Fallopia convo>		Broad-leaved p>		
Pest Name				Fanweed		Common lambsqu>		Clover	Black bindweed		Broad-leaved p>		
Crop Code				BBBBB		BBBBB		BBBBB	BBBBB		BBBBB		BBBBB
BBCH Scale				BDIC		BDIC		BDIC	BDIC		BDIC		BDIC
Crop Name				Broad-leaved p>		Broad-leaved p>		Broad-leaved p>	Broad-leaved p>		Broad-leaved p>		Broad-leaved p>
Description											Andet tokimbla>		pak choi
Part Rated				PLANT P		PLANT P		PLANT P	PLANT P		PLANT P		PLANT C
Rating Date				30-05-2018		30-05-2018		30-05-2018	30-05-2018		30-05-2018		03-05-2018
Rating Type				CONTRO		CONTRO		CONTRO	CONTRO		CONTRO		PHYGEN
Rating Unit				percent		percent		percent	percent		percent		percent
Sample Size, Unit				1 PLOT		1 PLOT		1 PLOT	1 PLOT		1 PLOT		1 PLOT
Collection Basis, Unit				1 PLOT		1 PLOT		1 PLOT	1 PLOT		1 PLOT		1 PLOT
Number of Subsamples				1		1		1	1		1		1
Crop Stage Majority				45		45		45	45		45		10
Crop Stage Minimum/Maximum				45 55		45 55		45 55	45 55		45 55		8 11
Pest Stage Majority				65									
Pest Density, Unit				11 PLA/m2		34 PLA/m2		24 PLA/m2	4 PLA/m2		7 PLA/m2		
Assessed By				AHK		AHK		AHK	AHK		AHK		AHK, LMA
Days After First/Last Applic.				36 15		36 15		36 15	36 15		36 15		9 9
Trt-Eval Interval				15 DA-D		15 DA-D		15 DA-D	15 DA-D		15 DA-D		0 DA-B
ARM Action Codes				EC		EC		EC	EC		EC		
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	6		9	12	15		18		1
1	Untreated Check				0,0		0,0	0,0	0,0		0,0		0,0a
2	Command CS	0,2	l/ha	A	90,0ab		57,5b	57,5b	32,5b		53,8b		0,0a
	Boxer	1,0	l/ha	B									
	Boxer	1,0	l/ha	C									
3	Command CS	0,2	l/ha	A	86,3b		91,3a	97,5a	92,5a		85,0a		0,0a
	Boxer	1,0	l/ha	B									
	Galera	0,3	l/ha	C									
	PG 26N	0,3	l/ha	C									
	Boxer	1,0	l/ha	D									
4	Command CS	0,1	l/ha	A	93,8ab		96,8a	98,8a	97,5a		85,0a		0,0a
	Boxer	1,0	l/ha	B									
	Command CS	0,05	l/ha	B									
	Galera	0,3	l/ha	C									
	PG 26N	0,3	l/ha	C									
	Boxer	1,0	l/ha	D									
	Command CS	0,1	l/ha	D									
5	Command CS	0,2	l/ha	A	87,5ab		94,8a	97,3a	97,5a		80,0a		0,0a
	Boxer	1,0	l/ha	B									
	Korveta (GF-3488)	0,5	l/ha	C									
	Boxer	1,0	l/ha	D									
6	Command CS	0,2	l/ha	A	87,5ab		96,8a	91,8a	95,0a		82,5a		0,0a
	Boxer	1,0	l/ha	B									
	Boxer	1,0	l/ha	C									
	Korveta (GF-3488)	0,5	l/ha	D									
7	Command CS	0,2	l/ha	A	90,0ab		94,5a	85,0a	83,8a		73,8a		0,0a
	Boxer	1,0	l/ha	B									
	Belkar	0,25	l/ha	C									
	Boxer	1,0	l/ha	D									

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code		THLAR	CHEAL	TRFSS	POLCO	BBBBB	
Pest Scientific Name		Thlaspi arvense	Chenopodium al>	Trifolium sp.	Fallopia convo>	Broad-leaved p>	
Pest Name		Fanweed	Common lambsqu>	Clover	Black bindweed	Broad-leaved p>	
Crop Code		BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB
BBCH Scale		BDIC	BDIC	BDIC	BDIC	BDIC	BDIC
Crop Name		Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>
Description						Andet tokimbla>	pak choi
Part Rated		PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C
Rating Date		30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	03-05-2018
Rating Type		CONTRO	CONTRO	CONTRO	CONTRO	CONTRO	PHYGEN
Rating Unit		percent	percent	percent	percent	percent	percent
Sample Size, Unit		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples		1	1	1	1	1	1
Crop Stage Majority		45	45	45	45	45	10
Crop Stage Minimum/Maximum		45 55	45 55	45 55	45 55	45 55	8 11
Pest Stage Majority		65					
Pest Density, Unit		11 PLA/m2	34 PLA/m2	24 PLA/m2	4 PLA/m2	7 PLA/m2	
Assessed By		AHK	AHK	AHK	AHK	AHK	AHK, LMA
Days After First/Last Applic.		36 15	36 15	36 15	36 15	36 15	9 9
Trt-Eval Interval		15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	0 DA-B
ARM Action Codes		EC	EC	EC	EC	EC	
Trt No.	Treatment Name	Rate Unit	Appl Code	6	9	12	15	18	1
8	Command CS	0,2l/ha	A	94,8a	96,8a	93,8a	96,3a	80,0a	0,0a
	Boxer	1,0l/ha	B						
	Boxer	1,0l/ha	C						
	Belkar	0,25l/ha	D						
LSD P=.05				5,12	5,28	11,34	14,41	11,64	.
Standard Deviation				3,45	3,56	7,64	9,70	7,84	0,00
CV				3,83	3,96	8,6	11,41	10,16	0,0
Levene's F				0,502	0,634	0,95	0,599	0,792	0,00
Levene's Prob(F)				0,80	0,702	0,482	0,728	0,586	.
Skewness				-0,3831	-2,0197*	-1,6256*	-2,2871*	-1,7198*	.
Kurtosis				0,0251	2,7692*	1,4675	4,138*	2,3743*	.
Replicate F				3,209	0,425	2,477	1,704	1,667	0,000
Replicate Prob(F)				0,0478	0,7377	0,0944	0,2019	0,2096	1,0000
Treatment F				3,545	65,201	14,557	23,748	7,895	0,000
Treatment Prob(F)				0,0170	0,0001	0,0001	0,0001	0,0003	1,0000

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code						
Pest Scientific Name						
Pest Name						
Crop Code	BBBBB	BBBBB				
BBCH Scale	BDIC	BDIC				
Crop Name	Broad-leaved p>	Broad-leaved p>				
Description	pak choi	pak choi	pak choi	pak choi	pak choi	Afblomstring
Part Rated	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
Rating Date	10-05-2018	15-05-2018	30-05-2018	15-06-2018	26-06-2018	26-06-2018
Rating Type	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	FLOWER
Rating Unit	percent	percent	percent	percent	percent	percent
Sample Size, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1	1
Crop Stage Majority	12	14	10	65	67	67
Crop Stage Minimum/Maximum	11 13		8 11			
Pest Stage Majority						
Pest Density, Unit						
Assessed By	LMA	AHK	AHK	AHK	LMA	LMA
Days After First/Last Applic.	16 1	21 6	36 15	52 31	63 42	63 42
Trt-Eval Interval	1 DA-C	0 DA-D	15 DA-D	31 DA-D	42 DA-D	42 DA-D
ARM Action Codes						

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	2	3	21	22	23	24
1	Untreated Check				0,0b	0,0c	0,0c	0,0b	0,0a	88,8a
2	Command CS	0,2	l/ha	A	35,0a	43,8ab	12,5ab	7,5ab	11,3a	81,3b
	Boxer	1,0	l/ha	B						
	Boxer	1,0	l/ha	C						
3	Command CS	0,2	l/ha	A	30,0a	37,5b	0,0c	0,0b	10,0a	70,0c
	Boxer	1,0	l/ha	B						
	Galera	0,3	l/ha	C						
	PG 26N	0,3	l/ha	C						
	Boxer	1,0	l/ha	D						
4	Command CS	0,1	l/ha	A	35,0a	40,0b	11,3ab	2,5b	7,5a	67,5c
	Boxer	1,0	l/ha	B						
	Command CS	0,05	l/ha	B						
	Galera	0,3	l/ha	C						
	PG 26N	0,3	l/ha	C						
	Boxer	1,0	l/ha	D						
	Command CS	0,1	l/ha	D						
5	Command CS	0,2	l/ha	A	31,3a	35,0b	0,0c	0,0b	5,0a	70,0c
	Boxer	1,0	l/ha	B						
	Korveta (GF-3488)	0,5	l/ha	C						
	Boxer	1,0	l/ha	D						
6	Command CS	0,2	l/ha	A	35,0a	52,5a	16,3a	16,3a	17,5a	71,3c
	Boxer	1,0	l/ha	B						
	Boxer	1,0	l/ha	C						
	Korveta (GF-3488)	0,5	l/ha	D						
7	Command CS	0,2	l/ha	A	31,3a	37,5b	5,0bc	5,0b	13,8a	70,0c
	Boxer	1,0	l/ha	B						
	Belkar	0,25	l/ha	C						
	Boxer	1,0	l/ha	D						

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type		W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code							
Pest Scientific Name							
Pest Name							
Crop Code		BBBBB	BBBBB				
BBCH Scale		BDIC	BDIC				
Crop Name		Broad-leaved p>	Broad-leaved p>				
Description		pak choi	pak choi	pak choi	pak choi	pak choi	Afblomstring
Part Rated		PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
Rating Date		10-05-2018	15-05-2018	30-05-2018	15-06-2018	26-06-2018	26-06-2018
Rating Type		PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	FLOWER
Rating Unit		percent	percent	percent	percent	percent	percent
Sample Size, Unit		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit		1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples		1	1	1	1	1	1
Crop Stage Majority		12	14	10	65	67	67
Crop Stage Minimum/Maximum		11 13		8 11			
Pest Stage Majority							
Pest Density, Unit							
Assessed By		LMA	AHK	AHK	AHK	LMA	LMA
Days After First/Last Applic.		16 1	21 6	36 15	52 31	63 42	63 42
Trt-Eval Interval		1 DA-C	0 DA-D	15 DA-D	31 DA-D	42 DA-D	42 DA-D
ARM Action Codes							
Trt Treatment	Rate	Appl					
No. Name	Rate Unit	Code	2	3	21	22	23	24
8 Command CS	0,2l/ha	A	32,5a	46,3ab	11,3ab	10,0ab	13,8a	71,3c
Boxer	1,0l/ha	B						
Boxer	1,0l/ha	C						
Belkar	0,25l/ha	D						
LSD P=.05			5,56	8,55	7,16	7,29	11,53	5,50
Standard Deviation			3,78	5,81	4,87	4,96	7,84	3,74
CV			13,15	15,9	69,23	96,17	79,66	5,07
Levene's F			2,11	0,968	3,177	2,302	1,537	1,333
Levene's Prob(F)			0,082	0,476	0,016*	0,06	0,202	0,278
Skewness			-1,6805*	-1,4242*	0,4681	1,2254*	0,1916	0,8202
Kurtosis			2,1077*	1,4886	-1,2506	0,8023	-1,6419*	-0,129
Replicate F			6,125	0,524	0,473	1,387	3,875	2,532
Replicate Prob(F)			0,0037	0,6704	0,7047	0,2742	0,0238	0,0846
Treatment F			38,875	29,643	7,305	5,551	2,016	15,319
Treatment Prob(F)			0,0001	0,0001	0,0002	0,0010	0,1011	0,0001

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
THLAR, Thlaspi arvense, Fanweed = US
CHEAL, Chenopodium album, Common lambsquarters = US
TRFSS, Trifolium sp., Clover = US
POLCO, Fallopia convolvulus, Black bindweed = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
Crop Code
BBBBB, BDIC, Broad-leaved plants, Broad-leaved plants = US
Part Rated
PLANT = plant
P = Pest is Part Rated
C = Crop is Part Rated
Rating Type
CONTRO = control / burndown or knockdown
PHYGEN = phytotoxicity - general / injury
FLOWER = flowering /blooming

PLOT = total plot

PLOT = total plot
Crop Stage Majority
45 = Harvestable vegetative plant parts or veg. propagated organs at 50% final size
10 = Cotyledons completely unfolded
12 = 2 true leaves, leaf pairs or whorls unfolded
14 = 4 true leaves, leaf pairs or whorls unfolded
65 = Full flowering: 50% flowers open, first petals may have fallen
67 = Flowering finishing: majority of petals fallen or dry
Crop Stage Minimum/Maximum
45 = Harvestable vegetative plant parts or veg. propagated organs at 50% final size
11 = First true leaf, leaf pair or whorl unfolded
55 = First individual flowers visible (still closed)
13 = 3 true leaves, leaf pairs or whorls unfolded
Pest Stage Majority
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type			W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code						THLAR	THLAR	THLAR	CHEAL	CHEAL
Pest Scientific Name						Thlaspi arvense	Thlaspi arvense	Thlaspi arvense	Chenopodium al>	Chenopodium al>
Pest Name						Fanweed	Fanweed	Fanweed	Common lambsqu>	Common lambsqu>
Crop Code			BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB
BBCH Scale			BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC
Crop Name			Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>
Description			pak choi	pak choi	pak choi					
Part Rated			PLANT C	PLANT C	PLANT C	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date			03-05-2018	10-05-2018	15-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018
Rating Type			PHYGEN	PHYGEN	PHYGEN	COUPLA	GROUND	CONTRO	COUPLA	GROUND
Rating Unit			percent	percent	percent	NUMBER	percent	percent	NUMBER	percent
Sample Size, Unit			1 PLOT	1 PLOT	1 PLOT	1 m2	1 PLOT	1 PLOT	1 m2	1 PLOT
Collection Basis, Unit			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples			1	1	1	1	1	1	1	1
Crop Stage Majority			10	12	14	45	45	45	45	45
Crop Stage Minimum/Maximum			8 11	11 13		45 55	45 55	45 55	45 55	45 55
Pest Stage Majority						65	65	65		
Pest Density, Unit								11 PLA/m2		
Assessed By			AHK, LMA	LMA	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.			9 9	16 1	21 6	36 15	36 15	36 15	36 15	36 15
Trt-Eval Interval			0 DA-B	1 DA-C	0 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D
ARM Action Codes								EC		

Trt No.	Treatment Name	Rate	Unit	Appl Code	Plot	1	2	3	4	5	6	7	8
1	Untreated Check				104	0,0	0,0	0,0	12,0	15,0	0,0	50,0	40,0
					206	0,0	0,0	0,0	10,0	10,0	0,0	30,0	25,0
					302	0,0	0,0	0,0	12,0	15,0	0,0	40,0	35,0
					407	0,0	0,0	0,0	10,0	10,0	0,0	15,0	10,0
					Mean =	0,0	0,0	0,0	11,0	12,5	0,0	33,8	27,5
2	Command CS	0,2	l/ha	A	101	0,0	40,0	50,0			90,0		
	Boxer	1,0	l/ha	B	204	0,0	30,0	30,0			90,0		
	Boxer	1,0	l/ha	C	308	0,0	30,0	45,0			90,0		
					402	0,0	40,0	50,0			90,0		
					Mean =	0,0	35,0	43,8	.	.	90,0	.	.
3	Command CS	0,2	l/ha	A	105	0,0	35,0	30,0			85,0		
	Boxer	1,0	l/ha	B	201	0,0	30,0	45,0			80,0		
	Galera	0,3	l/ha	C	304	0,0	30,0	40,0			90,0		
	PG 26N	0,3	l/ha	C	406	0,0	25,0	35,0			90,0		
	Boxer	1,0	l/ha	D									
					Mean =	0,0	30,0	37,5	.	.	86,3	.	.
4	Command CS	0,1	l/ha	A	103	0,0	40,0	40,0			90,0		
	Boxer	1,0	l/ha	B	207	0,0	35,0	40,0			95,0		
	Command CS	0,05	l/ha	B	305	0,0	35,0	45,0			95,0		
	Galera	0,3	l/ha	C	401	0,0	30,0	35,0			95,0		
	PG 26N	0,3	l/ha	C									
	Boxer	1,0	l/ha	D									
	Command CS	0,1	l/ha	D									
					Mean =	0,0	35,0	40,0	.	.	93,8	.	.
5	Command CS	0,2	l/ha	A	102	0,0	40,0	40,0			90,0		
	Boxer	1,0	l/ha	B	205	0,0	30,0	30,0			90,0		
	Korveta (GF-3488)	0,5	l/ha	C	307	0,0	25,0	30,0			80,0		
	Boxer	1,0	l/ha	D	403	0,0	30,0	40,0			90,0		
					Mean =	0,0	31,3	35,0	.	.	87,5	.	.
6	Command CS	0,2	l/ha	A	107	0,0	40,0	50,0			85,0		
	Boxer	1,0	l/ha	B	202	0,0	40,0	60,0			85,0		
	Boxer	1,0	l/ha	C	306	0,0	30,0	50,0			85,0		
	Korveta (GF-3488)	0,5	l/ha	D	408	0,0	30,0	50,0			95,0		
					Mean =	0,0	35,0	52,5	.	.	87,5	.	.
7	Command CS	0,2	l/ha	A	108	0,0	30,0	40,0			85,0		
	Boxer	1,0	l/ha	B	203	0,0	35,0	30,0			90,0		
	Belkar	0,25	l/ha	C	301	0,0	30,0	40,0			90,0		
	Boxer	1,0	l/ha	D	404	0,0	30,0	40,0			95,0		
					Mean =	0,0	31,3	37,5	.	.	90,0	.	.
8	Command CS	0,2	l/ha	A	106	0,0	40,0	50,0			95,0		
	Boxer	1,0	l/ha	B	208	0,0	35,0	40,0			90,0		
	Boxer	1,0	l/ha	C	303	0,0	25,0	50,0			95,0		
	Belkar	0,25	l/ha	D	405	0,0	30,0	45,0			99,0		
					Mean =	0,0	32,5	46,3	.	.	94,8	.	.

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type						W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code						CHEAL	TRFSS	TRFSS	TRFSS	POLCO	POLCO	POLCO	BBBBB
Pest Scientific Name						Chenopodium al>	Trifolium sp.	Trifolium sp.	Trifolium sp.	Fallopia convo>	Fallopia convo>	Fallopia convo>	Broad-leaved p>
Pest Name						Common lambsqu>	Clover	Clover	Clover	Black bindweed	Black bindweed	Black bindweed	Broad-leaved p>
Crop Code						BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB	BBBBB
BBCH Scale						BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC
Crop Name						Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>
Description													Andet tokimbla>
Part Rated						PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P	PLANT P
Rating Date						30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018
Rating Type						CONTRO	COUPLA	GROUND	CONTRO	COUPLA	GROUND	CONTRO	COUPLA
Rating Unit						percent	NUMBER	percent	percent	NUMBER	percent	percent	NUMBER
Sample Size, Unit						1 PLOT	1 m2	1 PLOT	1 PLOT	1 m2	1 PLOT	1 PLOT	1 m2
Collection Basis, Unit						1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples						1	1	1	1	1	1	1	1
Crop Stage Majority						45	45	45	45	45	45	45	45
Crop Stage Minimum/Maximum						45 55	45 55	45 55	45 55	45 55	45 55	45 55	45 55
Pest Stage Majority													
Pest Density, Unit						34 PLA/m2			24 PLA/m2			4 PLA/m2	
Assessed By						AHK	AHK	AHK	AHK	AHK	AHK	AHK	AHK
Days After First/Last Applic.						36 15	36 15	36 15	36 15	36 15	36 15	36 15	36 15
Trt-Eval Interval						15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D
ARM Action Codes						EC			EC			EC	
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	9	10	11	12	13	14	15	16
1	Untreated Check				104	0,0	30,0	15,0	0,0	3,0	3,0	0,0	5,0
					206	0,0	25,0	10,0	0,0	3,0	3,0	0,0	8,0
					302	0,0	25,0	10,0	0,0	5,0	4,0	0,0	8,0
					407	0,0	15,0	7,0	0,0	5,0	4,0	0,0	6,0
					Mean =	0,0	23,8	10,5	0,0	4,0	3,5	0,0	6,8
2	Command CS	0,2	l/ha	A	101	50,0			50,0			20,0	
	Boxer	1,0	l/ha	B	204	60,0			60,0			70,0	
	Boxer	1,0	l/ha	C	308	60,0			50,0			20,0	
					402	60,0			70,0			20,0	
					Mean =	57,5	.	.	57,5	.	.	32,5	.
3	Command CS	0,2	l/ha	A	105	95,0			100,0			95,0	
	Boxer	1,0	l/ha	B	201	85,0			90,0			90,0	
	Galera	0,3	l/ha	C	304	90,0			100,0			90,0	
	PG 26N	0,3	l/ha	C	406	95,0			100,0			95,0	
	Boxer	1,0	l/ha	D									
					Mean =	91,3	.	.	97,5	.	.	92,5	.
4	Command CS	0,1	l/ha	A	103	98,0			98,0			95,0	
	Boxer	1,0	l/ha	B	207	95,0			100,0			100,0	
	Command CS	0,05	l/ha	B	305	97,0			97,0			97,0	
	Galera	0,3	l/ha	C	401	97,0			100,0			98,0	
	PG 26N	0,3	l/ha	C									
	Boxer	1,0	l/ha	D									
	Command CS	0,1	l/ha	D									
					Mean =	96,8	.	.	98,8	.	.	97,5	.
5	Command CS	0,2	l/ha	A	102	99,0			99,0			95,0	
	Boxer	1,0	l/ha	B	205	95,0			100,0			95,0	
	Korveta (GF-3488)	0,5	l/ha	C	307	90,0			90,0			100,0	
	Boxer	1,0	l/ha	D	403	95,0			100,0			100,0	
					Mean =	94,8	.	.	97,3	.	.	97,5	.
6	Command CS	0,2	l/ha	A	107	100,0			90,0			95,0	
	Boxer	1,0	l/ha	B	202	95,0			97,0			100,0	
	Boxer	1,0	l/ha	C	306	95,0			85,0			90,0	
	Korveta (GF-3488)	0,5	l/ha	D	408	97,0			95,0			95,0	
					Mean =	96,8	.	.	91,8	.	.	95,0	.
7	Command CS	0,2	l/ha	A	108	90,0			60,0			75,0	
	Boxer	1,0	l/ha	B	203	98,0			100,0			90,0	
	Belkar	0,25	l/ha	C	301	95,0			90,0			85,0	
	Boxer	1,0	l/ha	D	404	95,0			90,0			85,0	
					Mean =	94,5	.	.	85,0	.	.	83,8	.
8	Command CS	0,2	l/ha	A	106	98,0			90,0			100,0	
	Boxer	1,0	l/ha	B	208	97,0			100,0			100,0	
	Boxer	1,0	l/ha	C	303	95,0			90,0			95,0	
	Belkar	0,25	l/ha	D	405	97,0			95,0			90,0	
					Mean =	96,8	.	.	93,8	.	.	96,3	.

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed	W Weed
Pest Code	BBBBB	BBBBB	POAAN	POAAN				
Pest Scientific Name	Broad-leaved p>	Broad-leaved p>	Poa annua	Poa annua				
Pest Name	Broad-leaved p>	Broad-leaved p>	Annual meadow >	Annual meadow >				
Crop Code	BBBBB	BBBBB	BBBBB	BBBBB				
BBCH Scale	BDIC	BDIC	BDIC	BDIC				
Crop Name	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>	Broad-leaved p>				
Description	Andet tokimbla>	Andet tokimbla>			pak choi	pak choi	pak choi	Afblomstring
Part Rated	PLANT P	PLANT P	PLANT P	PLANT P	PLANT C	PLANT C	PLANT C	PLANT C
Rating Date	30-05-2018	30-05-2018	30-05-2018	30-05-2018	30-05-2018	15-06-2018	26-06-2018	26-06-2018
Rating Type	GROUND	CONTRO	COUPLA	GROUND	PHYGEN	PHYGEN	PHYGEN	FLOWER
Rating Unit	percent	percent	NUMBER	percent	percent	percent	percent	percent
Sample Size, Unit	1 PLOT	1 PLOT	1 m2	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Collection Basis, Unit	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples	1	1	1	1	1	1	1	1
Crop Stage Majority	45	45	45	45	10	65	67	67
Crop Stage Minimum/Maximum	45 55	45 55	45 55	45 55	8 11			
Pest Stage Majority								
Pest Density, Unit		7 PLA/m2						
Assessed By	AHK	AHK	AHK	AHK	AHK	AHK	LMA	LMA
Days After First/Last Applic.	36 15	36 15	36 15	36 15	36 15	52 31	63 42	63 42
Trt-Eval Interval	15 DA-D	15 DA-D	15 DA-D	15 DA-D	15 DA-D	31 DA-D	42 DA-D	42 DA-D
ARM Action Codes		EC						

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	17	18	19	20	21	22	23	24
1	Untreated Check				104	5,0	0,0	0,0	0,0	0,0	0,0	0,0	90,0
					206	8,0	0,0	2,0	1,0	0,0	0,0	0,0	85,0
					302	8,0	0,0	1,0	1,0	0,0	0,0	0,0	90,0
					407	6,0	0,0	15,0	5,0	0,0	0,0	0,0	90,0
					Mean =	6,8	0,0	4,5	1,8	0,0	0,0	0,0	88,8
2	Command CS	0,2	l/ha	A	101		50,0			10,0	10,0	20,0	85,0
	Boxer	1,0	l/ha	B	204		75,0			10,0	0,0	0,0	80,0
	Boxer	1,0	l/ha	C	308		50,0			20,0	10,0	25,0	80,0
					402		40,0			10,0	10,0	0,0	80,0
					Mean =	.	53,8	.	.	12,5	7,5	11,3	81,3
3	Command CS	0,2	l/ha	A	105		85,0			0,0	0,0	20,0	80,0
	Boxer	1,0	l/ha	B	201		85,0			0,0	0,0	0,0	70,0
	Galera	0,3	l/ha	C	304		85,0			0,0	0,0	10,0	60,0
	PG 26N	0,3	l/ha	C	406		85,0			0,0	0,0	10,0	70,0
	Boxer	1,0	l/ha	D									
					Mean =	.	85,0	.	.	0,0	0,0	10,0	70,0
4	Command CS	0,1	l/ha	A	103		75,0			5,0	0,0	15,0	70,0
	Boxer	1,0	l/ha	B	207		85,0			15,0	0,0	0,0	65,0
	Command CS	0,05	l/ha	B	305		90,0			15,0	10,0	15,0	70,0
	Galera	0,3	l/ha	C	401		90,0			10,0	0,0	0,0	65,0
	PG 26N	0,3	l/ha	C									
	Boxer	1,0	l/ha	D									
	Command CS	0,1	l/ha	D									
					Mean =	.	85,0	.	.	11,3	2,5	7,5	67,5
5	Command CS	0,2	l/ha	A	102		85,0			0,0	0,0	0,0	70,0
	Boxer	1,0	l/ha	B	205		85,0			0,0	0,0	0,0	70,0
	Korveta (GF-3488)	0,5	l/ha	C	307		70,0			0,0	0,0	0,0	70,0
	Boxer	1,0	l/ha	D	403		80,0			0,0	0,0	20,0	70,0
					Mean =	.	80,0	.	.	0,0	0,0	5,0	70,0
6	Command CS	0,2	l/ha	A	107		85,0			10,0	10,0	25,0	70,0
	Boxer	1,0	l/ha	B	202		80,0			20,0	10,0	10,0	75,0
	Boxer	1,0	l/ha	C	306		80,0			15,0	20,0	15,0	70,0
	Korveta (GF-3488)	0,5	l/ha	D	408		85,0			20,0	25,0	20,0	70,0
					Mean =	.	82,5	.	.	16,3	16,3	17,5	71,3
7	Command CS	0,2	l/ha	A	108		75,0			10,0	10,0	25,0	70,0
	Boxer	1,0	l/ha	B	203		80,0			0,0	10,0	10,0	70,0
	Belkar	0,25	l/ha	C	301		60,0			0,0	0,0	0,0	70,0
	Boxer	1,0	l/ha	D	404		80,0			10,0	0,0	20,0	70,0
					Mean =	.	73,8	.	.	5,0	5,0	13,8	70,0
8	Command CS	0,2	l/ha	A	106		85,0			15,0	10,0	20,0	80,0
	Boxer	1,0	l/ha	B	208		80,0			10,0	0,0	0,0	65,0
	Boxer	1,0	l/ha	C	303		70,0			20,0	20,0	15,0	70,0
	Belkar	0,25	l/ha	D	405		85,0			0,0	10,0	20,0	70,0
					Mean =	.	80,0	.	.	11,3	10,0	13,8	71,3

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Ukrudtsbekæmpelse i pak choi til frø - afprøvning af strategier

Trial ID:18-442 Protocol ID:
Location:Høve Study Director:Peter Hartvig

Pest Type
W, Weed, G-BYRW7, G-WedStg = Weed or volunteer crop
Pest Code
THLAR, Thlaspi arvense, Fanweed = US
CHEAL, Chenopodium album, Common lambsquarters = US
TRFSS, Trifolium sp., Clover = US
POLCO, Fallopia convolvulus, Black bindweed = IE
BBBBB, Broad-leaved plants, Broad-leaved plants = US
POAAN, Poa annua, Annual meadow grass = IE
Crop Code
BBBBB, BDIC, Broad-leaved plants, Broad-leaved plants = US
Part Rated
PLANT = plant
C = Crop is Part Rated
P = Pest is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
COUPLA = count - plant / emergence - objective
GROUND = groundcover
CONTRO = control / burndown or knockdown
FLOWER = flowering /blooming
Rating Unit
NUMBER = number

PLOT = total plot
m2 = square meter

PLOT = total plot
Crop Stage Majority
10 = Cotyledons completely unfolded
12 = 2 true leaves, leaf pairs or whorls unfolded
14 = 4 true leaves, leaf pairs or whorls unfolded
45 = Harvestable vegetative plant parts or veg. propagated organs at 50% final size
65 = Full flowering: 50% flowers open, first petals may have fallen
67 = Flowering finishing: majority of petals fallen or dry
Crop Stage Minimum/Maximum
11 = First true leaf, leaf pair or whorl unfolded
45 = Harvestable vegetative plant parts or veg. propagated organs at 50% final size
13 = 3 true leaves, leaf pairs or whorls unfolded
55 = First individual flowers visible (still closed)
Pest Stage Majority
65 = Full flowering: 50% of flowers open, first petals may be fallen

PLA/m2 = plants per square meter
ARM Action Codes
EC = Do not analyze untreated check, and report check treatment mean on AOV Means Table

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Ukrudtsbekæmpelse i karse til frø - tolerance afprøvning af Stomp CS og Galera

Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

General Trial Information

Study Director: Peter Hartvig **Title:**Study director
Investigator: Andrius Hansen Kemezys **Title:**Forsøgsmedarbejder
Discipline:H herbicide
Trial Status:F final (completed) **Trial Reliability:**GOOD
Initiation Date:24-04-2018

Trial Location

City: Flakkebjerg **Latitude of LL Corner °:**55,322464 N
State/Prov.: Slagelse **Longitude of LL Corner °:**11,399592 E
Postal Code:4200
Country:DNK Denmark
Conducted Under GEP: Yes

Objectives:

At undersøge karses tolerance overfor Stomp og tankblandingen Stomp – Boxer som jordmidler før fremspiring
At undersøge karses tolerance overfor Galera ved udbringning på forskellige udviklingstrin af karse samt ved splitsprøjtning.

Conclusions:

Forsøget blev udført i Flakkebjerg med henblik på tolerance i karse til frø. Forsøget blev sprøjtet lige efter såning 24 april (behandling A), 16 dage senere 10. maj (behandling B), og 5 dage senere (behandling C). Bedømmelserne for skade på karse blev udført ved behandlingerne B og C, samt 8, 15, 31, 43 og 76 DA-C. Forsøget blev høstet den 30. juli.

Led 4 blev tydeligvis skadet af behandlingen lige efter såning, som kan ses i alle skadesbedømmelserne. Boxer kan sikkert identificeres som årsag til de observerede skader på karse. Led 4 ser dog ud til at kunne komme sig, og var også i stand til at sætte frø. Alle andre led har ikke vist signifikante skader ved nogle af bedømmelserne.

Høstanalyse har ikke vist signifikante forskelle mellem behandlingerne. Høstudbyttet i led 4 med Boxer har dog tydeligvis været påvirket, og er markant lavere end ubehandlet (36% af ubehandlet). Led 3 med 2,0 L/ha Stomp, og led 8 med 0,125 L/ha Galera ved B og C behandlingerne synes dog også have påvirket udbyttet (66,4-68,7% af ubehandlet).

Der er udtaget prøver til analyse for spireevne i vinteren 2019.

Personnel

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Crop Description

Crop 1: LEPSA Lepidium sativum Garden cress
Description:karse
BBCH Scale:BDIC **Planting Date:**20-04-2018
Harvest Date:03-08-2018
Harvested Width, Unit:2,5 m **Harvested Length, Unit:**10 m

Site and Design

Plot Width, Unit:2,5 m
Plot Length, Unit:10 m
Plot Area, Unit:25 m2
Replications:4 **Study Design:**RACOBL Randomized Complete Block (RCB)

Maintenance

No.	Date	Maintenance Treatment Name	Rate	Rate Unit
1.	15-05-2018	Mavrik	0,2	L/ha
2.	13-07-2018	Karate		

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Ukrudtsbekæmpelse i karse til frø - tolerance afprøvning af Stomp CS og Galera

Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Soil Description

% Sand:72 **% OM:**2,4 **Texture:**LS loamy sand
% Silt:14
% Clay:13

Moisture and Weather Conditions

Overall Moisture Conditions: VERDRY very dry
Closest Weather Station: Flakkebjerg **Distance, Unit:** 0,5 km

Application Description

	A	B	C
Application Date:	24-04-2018	10-05-2018	15-05-2018
Time of Day:	9:30	7:45	12:30
Application Method:	SPRAY	SPRAY	SPRAY
Application Timing:	PSPE	ATGRST	ATGRST
Application Placement:	SOIL	FOLIAR	FOLIAR
Applied By:	MOA	MOA	AHK
Air Temperature, Unit:	10,6 C	15,4 C	22,7 C
% Relative Humidity:	80,7	75,3	29,4
Wind Velocity, Unit:	6 MPS	2 MPS	1,5 MPS
Wind Direction:	WSW	E	NE
Dew Presence (Y/N):	N no	N no	N no
Soil Temperature, Unit:	11,5 C	14,6 C	18,6 C
Soil Moisture:	VERDRY	VERDRY	VERDRY
% Cloud Cover:	100	40	50
Next Rain Occurred On:	25-04-2018	11-05-2018	26-05-2018

Crop Stage At Each Application

	A	B	C
Crop 1 Code, BBCH Scale:	LEPSA BDIC	LEPSA BDIC	LEPSA BDIC
Stage Scale Used:	BBCH	BBCH	BBCH
Stage Majority, Percent:	01	12	14-18

Application Equipment

	A	B	C
Appl. Equipment:	Black spraye	Green spraye	Black spraye
Equipment Type:	SPRBIC	SPRBIC	SPRBIC
Operating Pressure, Unit:	1.9 BAR	2.1 BAR	1.9 BAR
Nozzle Type:	Hardi	Hardi	Hardi
Nozzle Size:	LD015-110	LD015-110	LD015-110
Nozzle Spacing, Unit:	50 cm	50 cm	50 cm
Nozzles/Row:	5	5	5
Boom Length, Unit:	25 m	2.5 m	2.5 m
Boom Height, Unit:	50 cm	50 cm	50 cm
Ground Speed, Unit:	3,3 KPH	3,3 KPH	3,3 KPH
Spray Volume, Unit:	200 L/ha	200 L/ha	200 L/ha
Mix Size, Unit:	4 liters	4 liters	4 liters

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Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Trt No.	Type	Treatment Name	Form Type	Description	Rate	Rate Unit	Appl Code	Appl Description
1	CHK	Untreated Check		not treated				
2	HERB	Stomp CS	CS		1,0	l/ha	A	Lige efter såning
3	HERB	Stomp CS	CS		2,0	l/ha	A	Lige efter såning
4	HERB	Stomp CS	CS		1,0	l/ha	A	Lige efter såning
	HERB	Boxer	CS		1,0	l/ha	A	Lige efter såning
5	HERB	Galera	CS		0,125	l/ha	B	Karse 2 løvblade
	HERB	PG 26N	CS		0,125	l/ha	B	Karse 2 løvblade
6	HERB	Galera	CS		0,25	l/ha	B	Karse 2 løvblade
	HERB	PG 26N	CS		0,25	l/ha	B	Karse 2 løvblade
7	HERB	Galera	CS		0,125	l/ha	C	Karse 4 løvblade
	HERB	PG 26N	CS		0,125	l/ha	C	Karse 4 løvblade
8	HERB	Galera	CS		0,125	l/ha	B	Karse 2 løvblade
	HERB	PG 26N	CS		0,125	l/ha	B	Karse 2 løvblade
	HERB	Galera	CS		0,125	l/ha	C	Karse 4 løvblade
	HERB	PG 26N	CS		0,125	l/ha	C	Karse 4 løvblade

Replications: 4, Untreated treatments: 1, Conduct under GLP/GEP: Yes (GEP with no protection), Design: Randomized Complete Block (RCB), Treatment units: Treated 'Plot' experimental unit size, Dry Form. Unit: %, Treated 'Plot' experimental unit size Width: 2,5 meters, Treated 'Plot' experimental unit size Length: 10 meters, Application volume: 200 L/ha, Mix size: 4 L, Format definitions: G-All7.def, G-All7.frm

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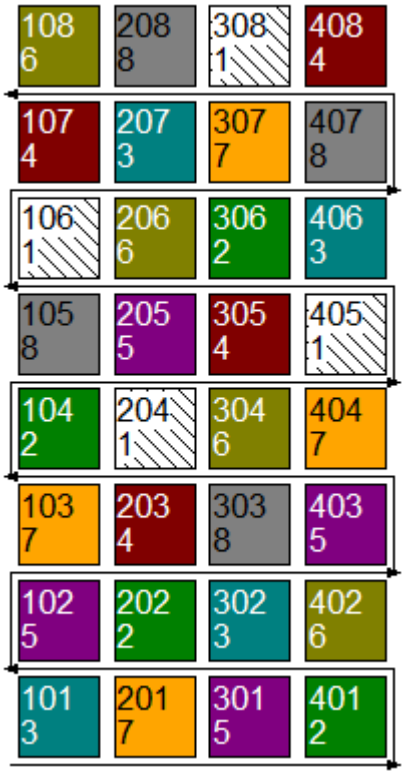
Ukrudtsbekæmpelse i karse til frø - tolerance afprøvning af Stomp CS og Galera

Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Trial Map Treatment Description

Trt	Code	Description
1	CHK	
2		
3		
4		
5		
6		
7		
8		



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Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Trt No.	Treatment Name	Rate	Unit	Appl Code	1	2	3	4	5	6	7	8
	Crop Code				LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA
	BBCH Scale				BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC
	Crop Name				Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress
	Description				Karse	Karse	Karse	Karse	Karse	Karse	Karse	Tilvækst
	Part Rated				PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
	Rating Date				10-05-2018	15-05-2018	23-05-2018	30-05-2018	15-06-2018	27-06-2018	27-06-2018	27-06-2018
	Rating Type				PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	FLOWER	BIOMAS
	Rating Unit				percent	percent	percent	percent	percent	percent	percent	percent
	Sample Size, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Collection Basis, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Number of Subsamples				1	1	1	1	1	1	1	1
	Crop Stage Majority					16		55	55	69	69	69
	Crop Stage Minimum/Maximum					14 18						
	Assessed By				LMA	AHK	LMA	AHK	AHK	LMA	LMA	LMA
	Days After First/Last Applic.				16 16	21 5	29 8	36 15	52 31	64 43	64 43	64 43
	Trt-Eval Interval				0 DA-B	0 DA-C	8 DA-C	15 DA-C	31 DA-C	43 DA-C	43 DA-C	43 DA-C
	ARM Action Codes											
	Number of Decimals											
1	Untreated Check				0,0b	0,0b	0,0b	0,3b	0,0b	2,5b	100,0a	92,5a
2	Stomp CS	1,0	l/ha	A	3,8b	5,0b	3,8b	5,0b	10,0b	11,3b	97,5a	86,3a
3	Stomp CS	2,0	l/ha	A	2,5b	12,5b	0,0b	1,3b	2,5b	5,0b	100,0a	91,3a
4	Stomp CS	1,0	l/ha	A	95,0a	93,8a	75,0a	78,8a	62,5a	50,0a	46,3b	62,5b
	Boxer	1,0	l/ha	A								
5	Galera	0,125	l/ha	B	3,8b	5,0b	5,0b	2,5b	2,5b	7,5b	100,0a	93,8a
	PG 26N	0,125	l/ha	B								
6	Galera	0,25	l/ha	B	5,0b	10,0b	7,5b	2,5b	10,0b	12,5b	97,5a	90,0a
	PG 26N	0,25	l/ha	B								
7	Galera	0,125	l/ha	C	0,0b	5,0b	0,0b	2,5b	2,5b	11,3b	100,0a	93,8a
	PG 26N	0,125	l/ha	C								
8	Galera	0,125	l/ha	B	1,3b	0,0b	2,5b	1,3b	5,0b	10,0b	98,8a	98,8a
	PG 26N	0,125	l/ha	B								
	Galera	0,125	l/ha	C								
	PG 26N	0,125	l/ha	C								
	LSD P=.05				5,30	11,31	7,84	6,33	14,12	11,60	3,85	12,18
	Standard Deviation				3,60	7,69	5,33	4,31	9,61	7,89	2,62	8,28
	CV				25,91	46,86	45,52	36,64	80,89	57,36	2,83	9,35
	Levene's F				2,918	1,343	1,64	0,556	3,619	6,367	0,629	3,305
	Levene's Prob(F)				0,023*	0,274	0,172	0,784	0,008*	0,001*	0,728	0,013*
	Skewness				2,3172*	2,1467*	2,2054*	2,2863*	2,2561*	1,8282*	-2,3028*	-1,1658*
	Kurtosis				3,7205*	3,3188*	3,4306*	3,6346*	4,5653*	3,1466*	3,6901*	0,4167
	Replicate F				1,504	2,269	2,590	0,769	3,116	0,837	2,130	0,254
	Replicate Prob(F)				0,2425	0,1102	0,0799	0,5243	0,0480	0,4885	0,1268	0,8575
	Treatment F				331,797	67,346	92,922	158,582	18,716	14,555	204,783	7,218
	Treatment Prob(F)				0,0001	0,0001	0,0001	0,0001	0,0001	0,0001	0,0001	0,0002

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 12;13=3,8

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Ukrudtsbekæmpelse i karse til frø - tolerance afprøvning af Stomp CS og Galera

Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	9	10	11	12	13
	Crop Code				LEPSA	LEPSA	LEPSA	LEPSA	LEPSA
	BBCH Scale				BDIC	BDIC	BDIC	BDIC	BDIC
	Crop Name				Garden cress	Garden cress	Garden cress	Garden cress	Garden cress
	Description				Karse	Nedvisnet	Før rensning	Efter rensning	Efter rensning
	Part Rated				PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
	Rating Date				30-07-2018	30-07-2018	02-10-2018	03-10-2018	03-10-2018
	Rating Type				PHYGEN	WILTIN	WEIFRE	WEIFRE	YIELD
	Rating Unit				percent	percent	g	g	KG
	Sample Size, Unit				1 PLOT	1 PLOT	25 m2	25 m2	1 ha
	Collection Basis, Unit				1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
	Number of Subsamples				1	1	1	1	1
	Crop Stage Majority				89	89	99	99	99
	Crop Stage Minimum/Maximum								
	Assessed By				LMA	LMA	AHK	PEA	PEA
	Days After First/Last Applic.				97 76	97 76	161 140	162 141	162 141
	Trt-Eval Interval				76 DA-C	76 DA-C	140 DA-C	141 DA-C	141 DA-C
	ARM Action Codes								TY1 APOC
	Number of Decimals								1
1	Untreated Check				0,0b	88,8a	3432,3a	1436,3a	574,5a (100,0%)
2	Stomp CS	1,0	l/ha	A	5,0b	90,0a	3102,5a	1172,8a	469,1a (81,7%)
3	Stomp CS	2,0	l/ha	A	0,0b	86,3a	2820,0a	953,0a	381,2a (66,4%)
4	Stomp CS	1,0	l/ha	A	45,0a	55,0c	2174,0a	516,5a	206,6a
	Boxer	1,0	l/ha	A					(36,0%)
5	Galera	0,125	l/ha	B	0,0b	86,3a	3282,0a	1125,8a	450,3a
	PG 26N	0,125	l/ha	B					(78,4%)
6	Galera	0,25	l/ha	B	7,5b	83,8a	2805,8a	929,3a	371,7a
	PG 26N	0,25	l/ha	B					(64,7%)
7	Galera	0,125	l/ha	C	0,0b	85,0a	3467,5a	1324,5a	529,8a
	PG 26N	0,125	l/ha	C					(92,2%)
8	Galera	0,125	l/ha	B	0,0b	76,3b	2967,5a	986,0a	394,4a
	PG 26N	0,125	l/ha	B					(68,7%)
	Galera	0,125	l/ha	C					
	PG 26N	0,125	l/ha	C					
	LSD P=.05				6,97	6,25	975,92	651,53	260,61
	Standard Deviation				4,74	4,25	663,66	441,72	176,69
	CV				65,95	5,22	22,07	41,76	41,76
	Levene's F				2,036	0,798	0,525	0,723	0,723
	Levene's Prob(F)				0,092	0,596	0,807	0,654	0,654
	Skewness				2,0246*	-1,5945*	0,4451	0,593	0,593
	Kurtosis				2,6886*	1,7932*	-0,4571	-0,6409	-0,6409
	Replicate F				2,272	3,969	0,229	0,274	0,274
	Replicate Prob(F)				0,1099	0,0218	0,8751	0,8433	0,8433
	Treatment F				43,053	29,041	1,620	1,630	1,630
	Treatment Prob(F)				0,0001	0,0001	0,1845	0,1843	0,1843

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).
Mean comparisons performed only when AOV Treatment P(F) is significant at mean comparison OSL.
Due to missing data, the effective replicates used for mean comparisons are: col. 12;13=3,8

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Ukrudtsbekæmpelse i karse til frø - tolerance afprøvning af Stomp CS og Galera

Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code
LEPSA, BDIC, Lepidium sativum, Garden cress = US
Part Rated
PLANT = plant
C = Crop is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
FLOWER = flowering /blooming
BIOMAS = biomas
WILTIN = wilting
WEIFRE = weight - fresh
YIELD = yield
Rating Unit
g = gram
KG = kilogram

PLOT = total plot
m2 = square meter
ha = hectare

PLOT = total plot
Crop Stage Majority
16 = 6 true leaves, leaf pairs or whorls unfolded
55 = First individual flowers visible (still closed)
69 = End of flowering: fruit set visible
89 = Fully ripe: fruit shows fully-ripe colour, beginning of fruit abscission
99 = Harvested product (post-harvest or storage treatment applied at stage 99)
Crop Stage Minimum/Maximum
14 = 4 true leaves, leaf pairs or whorls unfolded
18 = 8 true leaves, leaf pairs or whorls unfolded
ARM Action Codes
APOC = Automatic percent control (Control forced to 100% on AOV Means Table)
TY1 = 0.4*[12]

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Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code			LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA	LEPSA
BBCH Scale			BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC	BDIC
Crop Name			Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress	Garden cress
Description			Karse	Karse	Karse	Karse	Karse	Karse	Karse	Tilvækst	Karse	Nedvisnet	Før rensning
Part Rated			PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C	PLANT C
Rating Date			10-05-2018	15-05-2018	23-05-2018	30-05-2018	15-06-2018	27-06-2018	27-06-2018	27-06-2018	30-07-2018	30-07-2018	02-10-2018
Rating Type			PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	PHYGEN	FLOWER	BIOMAS	PHYGEN	WILTIN	WEIFRE
Rating Unit			percent	percent	percent	percent	percent	percent	percent	percent	percent	percent	g
Sample Size, Unit			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	25 m2
Collection Basis, Unit			1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT	1 PLOT
Number of Subsamples			1	1	1	1	1	1	1	1	1	1	1
Crop Stage Majority				16		55	55	69	69	69	89	89	99
Crop Stage Minimum/Maximum				14 18									
Assessed By			LMA	AHK	LMA	AHK	AHK	LMA	LMA	LMA	LMA	LMA	AHK
Days After First/Last Applic.			16 16	21 5	29 8	36 15	52 31	64 43	64 43	64 43	97 76	97 76	161 140
Trt-Eval Interval			0 DA-B	0 DA-C	8 DA-C	15 DA-C	31 DA-C	43 DA-C	43 DA-C	43 DA-C	76 DA-C	76 DA-C	140 DA-C
ARM Action Codes													
Number of Decimals													
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	1	2	3	4	5	6	7	8	9	10	11
1	Untreated Check				106	0,0	0,0	0,0	0,0	0,0	10,0	100,0	90,0	0,0	90,0	2930,0
					204	0,0	0,0	0,0	0,0	0,0	0,0	100,0	100,0	0,0	90,0	4240,0
					308	0,0	0,0	0,0	1,0	0,0	0,0	100,0	80,0	0,0	90,0	2890,0
					405	0,0	0,0	0,0	0,0	0,0	0,0	100,0	100,0	0,0	85,0	3669,0
					Mean =	0,0	0,0	0,0	0,3	0,0	2,5	100,0	92,5	0,0	88,8	3432,3
2	Stomp CS	1,0l/ha	A		104	0,0	0,0	0,0	0,0	0,0	0,0	100,0	100,0	0,0	90,0	3901,0
					202	5,0	10,0	10,0	5,0	10,0	20,0	100,0	80,0	0,0	90,0	3072,0
					306	0,0	0,0	0,0	0,0	0,0	0,0	100,0	95,0	0,0	90,0	3217,0
					401	10,0	10,0	5,0	15,0	30,0	25,0	90,0	70,0	20,0	90,0	2220,0
					Mean =	3,8	5,0	3,8	5,0	10,0	11,3	97,5	86,3	5,0	90,0	3102,5
3	Stomp CS	2,0l/ha	A		101	10,0	20,0	0,0	5,0	10,0	10,0	100,0	90,0	0,0	90,0	2333,0
					207	0,0	10,0	0,0	0,0	0,0	0,0	100,0	95,0	0,0	85,0	2996,0
					302	0,0	20,0	0,0	0,0	0,0	10,0	100,0	90,0	0,0	90,0	3050,0
					406	0,0	0,0	0,0	0,0	0,0	0,0	100,0	90,0	0,0	80,0	2901,0
					Mean =	2,5	12,5	0,0	1,3	2,5	5,0	100,0	91,3	0,0	86,3	2820,0
4	Stomp CS	1,0l/ha	A		107	95,0	100,0	80,0	80,0	80,0	60,0	45,0	60,0	50,0	50,0	1779,0
	Boxer	1,0l/ha	A		203	95,0	80,0	70,0	75,0	40,0	40,0	45,0	60,0	45,0	50,0	2703,0
					305	95,0	95,0	70,0	80,0	50,0	40,0	50,0	70,0	40,0	60,0	2239,0
					408	95,0	100,0	80,0	80,0	80,0	60,0	45,0	60,0	45,0	60,0	1975,0
					Mean =	95,0	93,8	75,0	78,8	62,5	50,0	46,3	62,5	45,0	55,0	2174,0
5	Galera	0,125l/ha	B		102	5,0	20,0	20,0	10,0	10,0	20,0	100,0	85,0	0,0	75,0	3208,0
	PG 26N	0,125l/ha	B		205	10,0	0,0	0,0	0,0	0,0	0,0	100,0	95,0	0,0	90,0	3007,0
					301	0,0	0,0	0,0	0,0	0,0	10,0	100,0	95,0	0,0	90,0	2691,0
					403	0,0	0,0	0,0	0,0	0,0	0,0	100,0	100,0	0,0	90,0	4222,0
					Mean =	3,8	5,0	5,0	2,5	2,5	7,5	100,0	93,8	0,0	86,3	3282,0
6	Galera	0,25l/ha	B		108	10,0	30,0	20,0	0,0	10,0	10,0	100,0	85,0	10,0	80,0	2244,0
	PG 26N	0,25l/ha	B		206	0,0	0,0	0,0	0,0	0,0	10,0	100,0	100,0	0,0	85,0	2420,0
					304	0,0	0,0	10,0	0,0	0,0	10,0	100,0	95,0	0,0	90,0	3965,0
					402	10,0	10,0	0,0	10,0	30,0	20,0	90,0	80,0	20,0	80,0	2594,0
					Mean =	5,0	10,0	7,5	2,5	10,0	12,5	97,5	90,0	7,5	83,8	2805,8
7	Galera	0,125l/ha	C		103	0,0	10,0	0,0	0,0	0,0	10,0	100,0	90,0	0,0	80,0	3827,0
	PG 26N	0,125l/ha	C		201	0,0	10,0	0,0	10,0	10,0	15,0	100,0	85,0	0,0	85,0	2433,0
					307	0,0	0,0	0,0	0,0	0,0	10,0	100,0	100,0	0,0	90,0	3165,0
					404	0,0	0,0	0,0	0,0	0,0	10,0	100,0	100,0	0,0	85,0	4445,0
					Mean =	0,0	5,0	0,0	2,5	2,5	11,3	100,0	93,8	0,0	85,0	3467,5
8	Galera	0,125l/ha	B		105	5,0	0,0	10,0	5,0	10,0	10,0	95,0	100,0	0,0	75,0	2834,0
	PG 26N	0,125l/ha	B		208	0,0	0,0	0,0	0,0	0,0	10,0	100,0	95,0	0,0	75,0	2659,0
	Galera	0,125l/ha	C		303	0,0	0,0	0,0	0,0	0,0	10,0	100,0	100,0	0,0	85,0	3655,0
	PG 26N	0,125l/ha	C		407	0,0	0,0	0,0	0,0	10,0	10,0	100,0	100,0	0,0	70,0	2722,0
					Mean =	1,3	0,0	2,5	1,3	5,0	10,0	98,8	98,8	0,0	76,3	2967,5

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Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code						LEPSA	LEPSA
BBCH Scale						BDIC	BDIC
Crop Name						Garden cress	Garden cress
Description						Efter rensning	Efter rensning
Part Rated						PLANT C	PLANT C
Rating Date						03-10-2018	03-10-2018
Rating Type						WEIFRE	YIELD
Rating Unit						g	KG
Sample Size, Unit						25 m2	1 ha
Collection Basis, Unit						1 PLOT	1 PLOT
Number of Subsamples						1	1
Crop Stage Majority						99	99
Crop Stage Minimum/Maximum							
Assessed By						PEA	PEA
Days After First/Last Applic.						162 141	162 141
Trt-Eval Interval						141 DA-C	141 DA-C
ARM Action Codes							TY1 APOC
Number of Decimals							1
Trt No.	Treatment Name	Rate	Rate Unit	Appl Code	Plot	12	13
1	Untreated Check				106	1092,0	436,8
					204	1958,0	783,2
					308	1059,0	423,6
					405	1636,0	654,4
					Mean =	1436,3	574,5
2	Stomp CS	1,0	l/ha	A	104	1791,0	716,4
					202	1000,0	400,0
					306	1270,0	508,0
					401	630,0	252,0
					Mean =	1172,8	469,1
3	Stomp CS	2,0	l/ha	A	101	764,0	305,6
					207	1090,0	436,0
					302	1119,0	447,6
					406	839,0	335,6
					Mean =	953,0	381,2
4	Stomp CS	1,0	l/ha	A	107	315,0	126,0
	Boxer	1,0	l/ha	A	203	734,0	293,6
					305	522,0	208,8
					408	495,0	198,0
					Mean =	516,5	206,6
5	Galera	0,125	l/ha	B	102	957,0	382,8
	PG 26N	0,125	l/ha	B	205	944,0	377,6
					301	968,0	387,2
					403	1634,0	653,6
					Mean =	1125,8	450,3
6	Galera	0,25	l/ha	B	108	683,0	273,2
	PG 26N	0,25	l/ha	B	206	538,0	215,2
					304	1730,0	692,0
					402	766,0	306,4
					Mean =	929,3	371,7
7	Galera	0,125	l/ha	C	103	1561,0	624,4
	PG 26N	0,125	l/ha	C	201	697,0	278,8
					307	1057,0	422,8
					404	1983,0	793,2
					Mean =	1324,5	529,8
8	Galera	0,125	l/ha	B	105	.	.
	PG 26N	0,125	l/ha	B	208	768,0	307,2
	Galera	0,125	l/ha	C	303	1506,0	602,4
	PG 26N	0,125	l/ha	C	407	684,0	273,6
					Mean =	986,0	394,4

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Trial ID:18-441 Protocol ID:
Location:Flakkebjerg Study Director:Peter Hartvig

Crop Code
LEPSA, BDIC, Lepidium sativum, Garden cress = US
Part Rated
PLANT = plant
C = Crop is Part Rated
Rating Type
PHYGEN = phytotoxicity - general / injury
FLOWER = flowering /blooming
BIOMAS = biomas
WILTIN = wilting
WEIFRE = weight - fresh
YIELD = yield
Rating Unit
g = gram
KG = kilogram

PLOT = total plot
m2 = square meter
ha = hectare

PLOT = total plot
Crop Stage Majority
16 = 6 true leaves, leaf pairs or whorls unfolded
55 = First individual flowers visible (still closed)
69 = End of flowering: fruit set visible
89 = Fully ripe: fruit shows fully-ripe colour, beginning of fruit abscission
99 = Harvested product (post-harvest or storage treatment applied at stage 99)
Crop Stage Minimum/Maximum
14 = 4 true leaves, leaf pairs or whorls unfolded
18 = 8 true leaves, leaf pairs or whorls unfolded
ARM Action Codes
APOC = Automatic percent control (Control forced to 100% on AOV Means Table)
TY1 = 0.4*[12]

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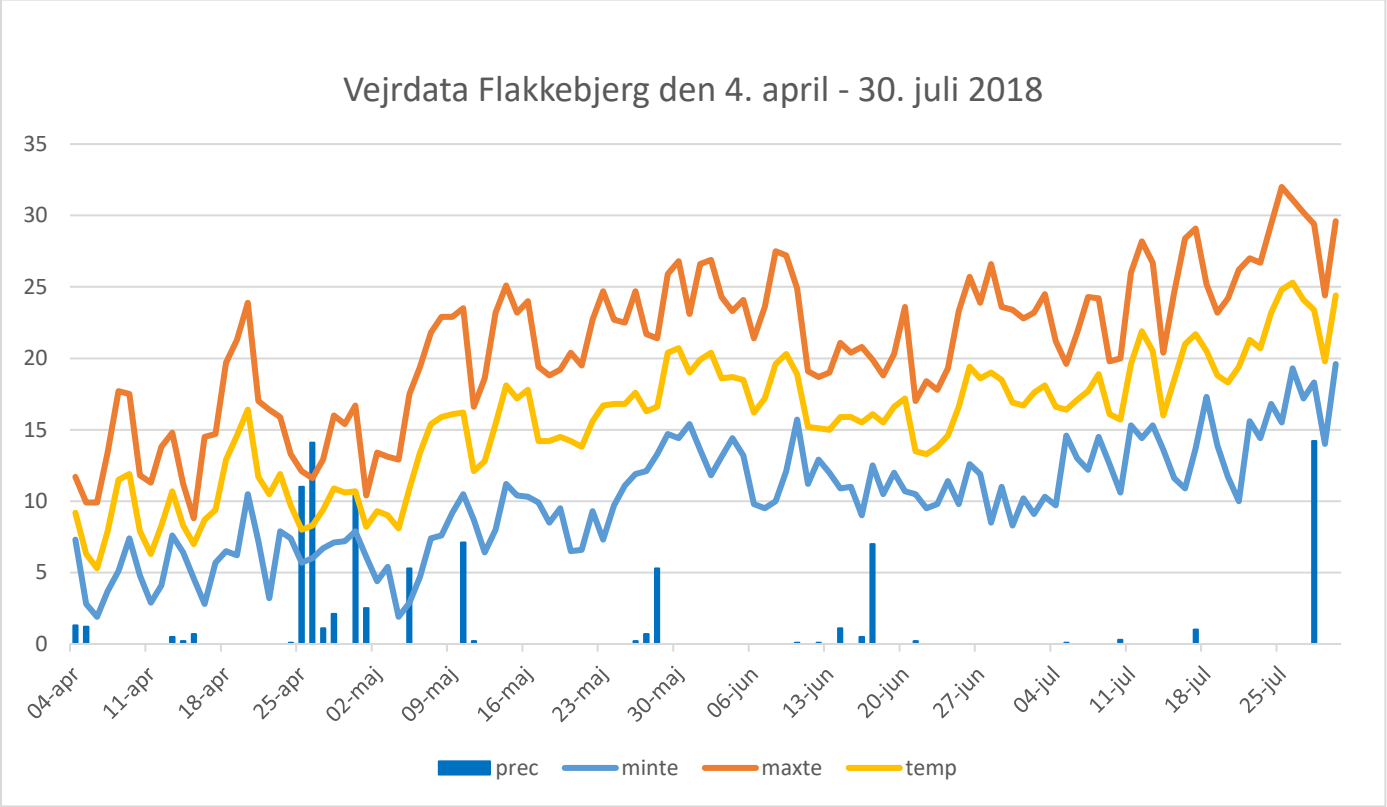
Bilag 1. Vejrdata Flakkebjerg

Meteorologisk data for forsøgsperioden fra Flakkebjerg vejr station



Figur 1. Gennemsnitig (temp), Minimum (minte) and maximum (maxte) temperatur og nedbør (prec).

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UNIVERSITY OF AARHUS

Ukrudtsbekæmpelse i spinat til frø - afprøvning af phenmedipham bladstrategier, kombinationer af nye jordmidler samt "nye" bladmidler

Afgrøde: Spinat til frø
Forsøgsnumre:

		Version forsøgplan:	Lokaliteter:
Antal forsøg og type:	1 forsøg (DK) Effektivitet og selektivitet	4 (12. april 2018)	Allan Nielsen

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1.	Ubehandlet		
2.	Centium 36 CS	0,2	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Betanal	1,0	E 6-8 dage senere
	Betanal	1,0	G 6-8 dage senere
3.	Centium 36 CS	0,1	A Lige efter såning
	Betanal + Centium 36 CS	1,5 + 0,05	C Ukrudt kimblade
	Betanal + Centium 36 CS	1,0 + 0,05	E 6-8 dage senere
	Betanal + Centium 36 CS	1,0 + 0,05	G 6-8 dage senere
4.	Centium 36 CS	0,1	A Lige efter såning
	Betanal	0,75	B Beg. fremspiring
	Betanal + Centium 36 CS	0,75 + 0,05	C 3-4 dage senere
	Betanal	0,5	D 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	E 3-4 dage senere
	Betanal	0,5	F 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	G 3-4 dage senere
5.	Danmark: Jordmiddel I*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + DFF	0,15 + 0,025	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
6.	Danmark: Jordmiddel II*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + Venzar 500 SC	0,15 + 1,0	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
7.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Lentagran WP	0,5	E 6-8 dage senere
	Lentagran WP	0,5	G 6-8 dage senere
8.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Safari + Renol	0,05 + 0,1	E 6-8 dage senere
	Safari + Renol	0,05 + 0,1	G 6-8 dage senere

*** Jordmidler:** Centium, Goltix WG, DFF, Proman, Venzar

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af phenmedipham bladstrategier, kombinationer af nye jordmidler samt "nye" bladmidler

Afgrøde: Spinat til frø

Forsøgsnumre:

		Version forsøgplan:	Lokaliteter:
Antal forsøg og type:	1 forsøg (DK) Effektivitet og selektivitet	4 (12. april 2018)	Max Madsen

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1.	Ubehandlet		
2.	Centium 36 CS	0,2	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Betanal	1,0	E 6-8 dage senere
	Betanal	1,0	G 6-8 dage senere
3.	Centium 36 CS	0,1	A Lige efter såning
	Betanal + Centium 36 CS	1,5 + 0,05	C Ukrudt kimblade
	Betanal + Centium 36 CS	1,0 + 0,05	E 6-8 dage senere
	Betanal + Centium 36 CS	1,0 + 0,05	G 6-8 dage senere
4.	Centium 36 CS	0,1	A Lige efter såning
	Betanal	0,75	B Beg. fremspiring
	Betanal + Centium 36 CS	0,75 + 0,05	C 3-4 dage senere
	Betanal	0,5	D 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	E 3-4 dage senere
	Betanal	0,5	F 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	G 3-4 dage senere
5.	Danmark: Jordmiddel I*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + DFF	0,15 + 0,025	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
6.	Danmark: Jordmiddel II*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + Proman	0,15 + 0,75	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
7.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Nortron SC + Centium 36 CS	0,14 + 0,05	E 6-8 dage senere
	Nortron SC + Centium 36 CS	0,14 + 0,05	G 6-8 dage senere
8.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Safari + Renol	0,05 + 0,1	E 6-8 dage senere
	Safari + Renol	0,05 + 0,1	G 6-8 dage senere

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Ukrudtsbekæmpelse i spinat til frø - afprøvning af phenmedipham bladstrategier, kombinationer af nye jordmidler samt "nye" bladmidler

Afgrøde: Spinat til frø

Forsøgsnumre:

		Version forsøgplan:	Lokaliteter:
Antal forsøg og type:	1 forsøg (DK) Effektivitet og selektivitet	4 (12. april 2018)	Jens Ellegaard

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1.	Ubehandlet		
2.	Centium 36 CS	0,2	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Betanal	1,0	E 6-8 dage senere
	Betanal	1,0	G 6-8 dage senere
3.	Centium 36 CS	0,1	A Lige efter såning
	Betanal + Centium 36 CS	1,5 + 0,05	C Ukrudt kimblade
	Betanal + Centium 36 CS	1,0 + 0,05	E 6-8 dage senere
	Betanal + Centium 36 CS	1,0 + 0,05	G 6-8 dage senere
4.	Centium 36 CS	0,1	A Lige efter såning
	Betanal	0,75	B Beg. fremspiring
	Betanal + Centium 36 CS	0,75 + 0,05	C 3-4 dage senere
	Betanal	0,5	D 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	E 3-4 dage senere
	Betanal	0,5	F 3-4 dage senere
	Betanal + Centium 36 CS	0,5 + 0,05	G 3-4 dage senere
5.	Danmark: Jordmiddel I*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + Venzar 500 SC	0,15 + 1,0	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
6.	Danmark: Jordmiddel II*. Ekspertvurdering på baggrund af jordprøve		
	Command CS + Proman	0,15 + 0,75	A Lige efter såning
	Betanal efter behov		C Ukrudt kimblade
	Betanal efter behov		E 6-8 dage senere
	Betanal efter behov		G 6-8 dage senere
7.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Nortron SC + Centium 36 CS	0,14 + 0,05	E 6-8 dage senere
	Nortron SC + Centium 36 CS	0,14 + 0,05	G 6-8 dage senere
8.	Centium 36 CS + Proman	0,1 + 1,0	A Lige efter såning
	Betanal	1,5	C Ukrudt kimblade
	Lentagran WP	0,5	E 6-8 dage senere
	Lentagran WP	0,5	G 6-8 dage senere

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fortsat fra side 3

Grundbehandling: Hvis der lige før fremspiring er behov for glyphosat eller Reglone, så aftales det med forsøgsværten at han behandler hele forsøget. Husk at understrege, at det kun er denne ukrudtssprøjtning at han må foretage i forsøget.

Registreringer:

	Effekt på ukrudt	Generel skade (PHYGEN) på spinat	Udbytte, kg rent frø
Ved tid E		X	
Ved tid G		X	
2 uger efter tid G	X	X	
4 uger efter tid G		X	
Høst			X

Effekt bedømmes som procent dækning af dominerende enkelt arter (> 8-10 ukrudtsplanter pr. kvadratmeter i ubehandlet). Ved fuldt dækket areal må den samlede dækning af alle arter ikke overstige 100. For at kunne omsætte dækningsgraden til faktuelle værdier tælles hver ukrudtsart i faste tælleflader i ubehandlet ved 3. bladsprøjtning eller når fremspiringen af ukrudt vurderes som afsluttet.

Skade bedømmes med en 0-100 skala, hvor:
0 = Ingen skade
10 = mindste sikre herbicidskade
20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.
30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet
>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet
100 = alt dræbt

Vedligeholdelse: Ukrudtet må ikke genere spinaten så udbyttet påvirkes. Derfor skal behov for radrensning og/eller håndlugning løbende vurderes under hensyntagen til at det skal fortsat være muligt at foretage bedømmelser for effekt på ukrudt og at forsøget skal være egnet til fremvisning.

Forsøgsdesign: Randomiseret blok,32 parceller á 25 kvadratmeter

Sprøjteknik: Fladespredедyser med dobbelt overlapning, 200 l/ha

Aktivitet: 17323

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Screening af nye herbicider i spinat
- toleranceforsøg

Afgrøde: Spinat
Forsøgsnumre:
Version forsøgplan: 1
Lokaliteter: Flakkebjerg
Antal forsøg og type: 1 forsøg Selektivitet
24. april 2018

Behandlinger:

Herbicid	Afgrøde	Dosering	Tidspunkt
1. Ubehandlet			
2. Nortron SC	Spinat	0,23	A Lige efter såning
3. Nortron SC	Spinat	0,46	A Lige efter såning
4. Maister + olie	Spinat	0,025 + 0,67	A Lige efter såning
5. Maister + olie	Spinat	0,05 + 0,67	A Lige efter såning
6. Gallery	Spinat	0,075	A Lige efter såning
7. Gallery	Spinat	0,150	A Lige efter såning
8. Devrinol	Spinat	2,1	A Lige efter såning
9. Devrinol	Spinat	4,2	A Lige efter såning
10. Cryptic	Spinat	0,9	A Lige efter såning
11. Cryptic	Spinat	1,8	A Lige efter såning
12. Tanaris	Spinat	1,5	A Lige efter såning
13. Lentagran WP	Spinat	0,5	B Spinat 2 løvblade
14. Lentagran WP	Spinat	1,0	B Spinat 2 løvblade
15. Korveta	Spinat	0,125	B Spinat 2 løvblade
16. Korveta	Spinat	0,25	B Spinat 2 løvblade
17. Pixxaro EC	Spinat	0,1	B Spinat 2 løvblade
18. Pixxaro EC	Spinat	0,2	B Spinat 2 løvblade
19. Belkar	Spinat	0,125	B Spinat 2 løvblade
20. Belkar	Spinat	0,25	B Spinat 2 løvblade
21. Tanaris	Spinat	1,5	B Spinat 2 løvblade
22. Maister + olie	Spinat	0,0125 + 0,67	B Spinat 2 løvblade
23. Maister + olie	Spinat	0,025 + 0,67	B Spinat 2 løvblade
24. DFF	Spinat	0,05	B Spinat 2 løvblade
25. DFF	Spinat	0,1	B Spinat 2 løvblade
26. Fenix	Spinat	0,3	B Spinat 2 løvblade
27. Fenix	Spinat	0,6	B Spinat 2 løvblade
28. Fenix + Boxer	Spinat	0,3 + 0,5	B Spinat 2 løvblade
29. Fenix + Boxer	Spinat	0,3 + 1,0	B Spinat 2 løvblade
30. Nortron SC	Spinat	0,23	B Spinat 2 løvblade
31. Nortron SC	Spinat	0,46	B Spinat 2 løvblade
32. Cryptic	Spinat	0,9	B Spinat 2 løvblade

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Registreringer:

	Dækning af ukrudt (artsniveau)	Procent effekt (artsniveau)	Generel skade (PHYGEN)
Ved tid B			X
1 uge efter tid B			X
2 uger efter tid B			X
4 uger efter tid B			X
8 uger efter tid B			X

Skade bedømmes med en 0-100 skala, hvor:
0 = Ingen skade
10 = mindste sikre herbicidskade
20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.
30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet
>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet
100 = alt dræbt

Forsøgsdesign: Smallplot, dampbehandlet jord
Randomiseret blok. 128 parceller á 1 kvadratmeter

Sprøjteknik: Fladespredедyser Teejet 9504 EVS, enkelt overlapning, 200 l/ha

Aktivitet: 22494

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Ukrudtsbekæmpelse i spinat til frø
- tolerance screening af Safari

Afgrøde: Spinat

Forsøgsnumre: | **Version forsøgplan:** | **Lokaliteter:**

Antal forsøg og type: 1 forsøg Selektivitet | 1 26. juni 2018 | Flakkebjerg

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1. Ubehandlet			
2. Safari + Renol		0,0025 + 0,5	A Spinat 1½-2 løvblade
3. Safari + Renol		0,005 + 0,5	A Spinat 1½-2 løvblade
4. Safari + Renol		0,01 + 0,5	A Spinat 1½-2 løvblade
5. Safari + Renol		0,02 + 0,5	A Spinat 1½-2 løvblade
6. Safari + Renol		0,04 + 0,5	A Spinat 1½-2 løvblade
7. Safari		0,01	A Spinat 1½-2 løvblade
8. Safari + Renol		0,005 + 0,5	A Spinat 1½-2 løvblade
Safari + Renol		0,005 + 0,5	B 6-8 dage senere

Registreringer:

	Effekt på ukrudt	Generel skade (PHYGEN) på karse	Udbytte, frø
1 uge efter tid A		X	
2 uger efter tid A		X	
4 uger efter tid A		X	
6-7 uger efter tid A		X	

Skade bedømmes med en 0-100 skala, hvor:
0 = Ingen skade
10 = mindste sikre herbicidskade
20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.
30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet
>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet
100 = alt dræbt

Forsøgsdesign: Randomiseret blok, 32 parceller á 1 kvadratmeter

Sprøjteknik: Teejet SS 9504 EVS, 200 l/ha

Aktivitet: 17323

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Ukrudtsbekæmpelse i spinat og pak choi til frø
- afprøvning af Devrinol og Centium kombinationer

Afgrøde: Spinat og pak choi (2 rækker af hver)

Forsøgsnumre: **Version forsøgplan:** 1 **Lokaliteter:** Flakkebjerg

Antal forsøg og type: 1 forsøg Effektivitet og selektivitet

15. april 2018

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1. Ubehandlet			
2. Devrinol		2,1	A Nedharves før såning
3. Centium 36 CS		0,2	B. Lige efter såning
4. Centium 36 CS + Stomp CS		0,2 + 1,0	B. Lige efter såning
5. Centium 36 CS + Devrinol		0,2 + 2,1	A Nedharves før såning
6. Centium 36 CS + Devrinol		0,2 + 2,1	B. Lige efter såning
7. Devrinol		2,1	A Nedharves før såning
Centium 36 CS		0,2	B. Lige efter såning

Registreringer:

	Effekt på ukrudt	Generel skade (PHYGEN) på spinat og pak choi	Udbytte, frø
2 uger efter tid B		X	
4 uger efter tid B		X	
6 uger efter tid B	X	X	
8 uger efter tid B		X	

Skade bedømmes med en 0-100 skala, hvor:
0 = Ingen skade
10 = mindste sikre herbicidskade
20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.
30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet
>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet
100 = alt dræbt

Grundbehandling: Halvdelen af arealet dampbehandles og anvendes til tolerancebedømmelser
Effekt på ukrudt bedømmes i den anden halvdel, der ikke er dampbehandlet

Forsøgsdesign: Randomiseret blok, 28 parceller á 15 kvadratmeter, 2 meter værn mellem parceller

Sprøjteknik: Fladespredelyser med dobbelt overlapning, 200 l/ha

Aktivitet: 17323

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Ukrudtsbekæmpelse i karse til frø
- tolerance afprøvning af Stomp CS og Galera

Afgrøde: Karse

Forsøgsnumre:

Version forsøgplan: 1

Lokaliteter: Flakkebjerg

Antal forsøg og type: 1 forsøg Effektivitet og selektivitet

27. marts 2018

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1. Ubehandlet			
2. Stomp CS		1,0	A Lige efter såning
3. Stomp CS		2,0	A Lige efter såning
4. Stomp CS + Boxer		1,0 + 1,0	A Lige efter såning
5. Galera + PG 26N		0,125 + 0,125	B Karse 2 løvblade
6. Galera + PG 26N		0,25 + 0,25	B Karse 2 løvblade
7. Galera + PG 26N		0,125 + 0,125	C Karse 4 løvblade
8. Galera + PG 26N		0,125 + 0,125	B Karse 2 løvblade
Galera + PG 26N		0,125 + 0,125	C Karse 4 løvblade

Registreringer:

	Effekt på ukrudt	Generel skade (PHYGEN) på karse	Udbytte, frø
Ved tid B		X	
Ved tid C		X	
1 uge efter tid C		X	
2 uger efter tid C		X	
4 uger efter tid C		X	
			X

Skade bedømmes med en 0-100 skala, hvor:
0 = Ingen skade
10 = mindste sikre herbicidskade
20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.
30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet
>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet
100 = alt dræbt

Grundbehandling: Hele arealet dampbehandles

Forsøgsdesign: Randomiseret blok, 32 parceller á 25 kvadratmeter

Sprøjteknik: Fladespredедyser med dobbelt overlapning, 200 l/ha

Aktivitet: 17323

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Ukrudtsbekæmpelse i pak choi til frø
- afprøvning af strategier

Afgrøde:	Pak choi		
Forsøgsnumre:		**Version forsøgplan:**	**Lokaliteter:**
Antal forsøg og type:	1 forsøg Effektivitet og selektivitet	1 27. marts 2018	Høve

Behandlinger:

	Herbicid	Dosering	Tidspunkt
1.	Ubehandlet		
2.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Boxer	1,0	C 5-7 dage senere
3.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Galera + PG 26N	0,3 + 03	C 5-7 dage senere
	Boxer	1,0	D 6-8 dage senere
4.	Command CS	0,1	A Lige efter såning
	Boxer + Command CS	1,0 + 0,05	B Kim-½ løvblad
	Galera + PG 26N	0,3 + 03	C 5-7 dage senere
	Boxer + Command CS	1,0 + 0,1	D 6-8 dage senere
5.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Korveta (GF-3488)	0,5	C 5-7 dage senere
	Boxer	1,0	D 6-8 dage senere
6.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Boxer	1,0	C 5-7 dage senere
	Korveta (GF-3488)	0,5	D 6-8 dage senere
7.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Belkar	0,25	C 5-7 dage senere
	Boxer	1,0	D 6-8 dage senere
8.	Command CS	0,2	A Lige efter såning
	Boxer	1,0	B Kim-½ løvblad
	Boxer	1,0	C 5-7 dage senere
	Belkar	0,25	D 6-8 dage senere

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Registreringer:

	Effekt på ukrudt	Generel skade (PHYGEN) på pak choi	Udbytte, kg rent frø
Ved tid B		X	
Ved tid C		X	
Ved tid D		X	
2 uger efter tid D	X	X	
4 uger efter tid D		X	
6 uger efter tid D		X	

Effekt bedømmes som procent dækning af dominerende enkelt arter (> 8-10 ukrudtsplanter pr. kvadratmeter i ubehandlet). Ved fuldt dækket areal må den samlede dækning af alle arter ikke overstige 100. For at kunne omsætte dækningsgraden til faktuelle værdier tælles hver ukrudtsart i ubehandlet 2 uger efter T3

Skade bedømmes med en 0-100 skala, hvor:

0 = Ingen skade

10 = mindste sikre herbicidskade

20 = tydelig herbicidskade, men vurderes at kunne accepteres uden at påvirke udbyttet.

30 = meget tydelig herbicidskade, der højest sandsynlig vil påvirke udbyttet

>35 = meget tydelige herbicidskader, der med sikkerhed vil påvirke udbyttet

100 = alt dræbt

Forsøgsdesign: Randomiseret blok, 32 parceller á 15 kvadratmeter

Sprøjteknik: Fladespredедyser med dobbelt overlapning, 200 l/ha

Aktivitet: 17323

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AARHUS UNIVERSITY
DCA - DANISH CENTRE FOR FOOD AND AGRICULTURE

Certificate

GEP approval is granted to

Testing unit: **Aarhus University**
Science and Technology
Department of Agroecology (Weeds)
DK-4200 Slagelse

The approval applies to the execution of GEP efficacy trials of pesticides within

Testing areas: **Field Trials**
Fruitgrowing trials
Forestry Trials

GEP

The GEP Recognition Unit at the Danish Centre for Food and Agriculture, Aarhus University, controls organisation, staff, premises, trial fields, trial equipment, standard operation procedures and trial reports. The testing unit is subject to continuous control and inspection.

The certificate is valid for a period of 6 years.

Date of approval: 1 January 2014

Signed: 16 December 2013

Nina Sørup Hansen
Danish Environmental Protection Agency

Ulla Fosgerau Salomonsen
Aarhus University

Peter Kryger Jensen
Aarhus University

Regulation 1107/2009 concerning plant protection products and ministerial order no. 1088 dated 6th September 2013 from Danish Ministry of theEnvironment states that investigations of the efficacy of plant protection products carried out in Denmark for registration purposes must be performed by testing units which have been approved to carry out these investigations by the Danish Centre for Food and Agriculture, Aarhus University.

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