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EVALUATION OF FURADAN AND ORTHENE AGAINST A BLUESTEM SEED MIDGE, 1986 AND 1987:

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BUCKWHEAT: *Fagopyrum esculentum* Moench c.v. unknown
Black cutworm; *Agrotis ipsilon* (Hufnagel)

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(21F)

BLACK CUTWORM CONTROL IN BUCKWHEAT, 1988: An unusual migration of black cutworm into northern Minnesota led to a larval infestation that devastated buckwheat planted in former wild rice fields in the Washkish area. Plot size was 25 ft × 50 ft. Treatments were arranged in a randomized complete block design and replicated three times. Insecticides were applied with a hand held CO₂ sprayer with 40 psi pressure and total material equal to 8 gal/acre. The date of application was 1 Jul with air temperatures in the 70s°F. The site contained deep peats and no tillage followed application. The number of dead larvae/m² were counted and the data analyzed.

Damage was severe at the time the trial was established so odd cutworm distribution was probable. Also larval populations appeared to have declined to relatively low levels. However the uniqueness of the location, soil type and crop make the trial worth reporting. The rank of insecticide performance is similar to what one would hypothesize. Damage stopped in all plots following application except in Sevin XLR.

Treatment ¹	Rate/acre (lb AI)	Avg no. dead larvae/m ² 24 h posttreat
Baythroid 2 E	0.025	8.0a
Asana 1.9 E	0.025	7.7ab
Ambush 2 E	0.1	6.7ab
Karate 1 E	0.025	6.0ab
Pydrin 2.4 E	0.1	5.0ab
XRM-522 .9 E	0.05	3.7ab
Capture 2 E	0.025	3.7ab
Lorsban 4 E	0.75	3.0ab
Sevin XLR 4 F	1.5	0.0b
Untreated	—	0.0b

Means with the same letter are not different statistically ($P = 0.05$; DNMRT).

¹None of these insecticides is labeled on buckwheat.

BIG BLUESTEM: *Andropogon gerardii* Vitman
A bluestem seed midge; *Contaria wattsi* (Gagné)

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EVALUATION OF FURADAN AND ORTHENE AGAINST A BLUESTEM SEED MIDGE, 1986 AND 1987: The insecticides were applied to 2 fields, one in Saunders Co., Neb., (1986 and 1987) and the other in Cass Co., Neb. (1987 only). Both were seed production fields of 'Pawnee' big bluestem which were planted in rows spaced 3.5 ft apart and cultivated annually to maintain row spacing. The insecticides were single applications of Furadan 4 F (carbofuran) and Orthene (acephate) at the rate of 1.0 lb/A in 6 gal/acre water at early anthesis. The insecticides were applied with a CO₂ activated pressure, knapsack sprayer equipped with a 5 ft boom. Applications were made on either 16 or 17 Jul in both yr and at both locations. The experimental design was a RCB with 4 replications at each site. Each plot consisted of six 30 ft rows. The center 2 rows of each plot were harvested for seed by removing the upper portions of the raceme bearing culms with hand sickles during the last week of Sep. The harvested material was then threshed with a small plot thresher. The midge population was sampled by collecting 25 raceme bearing culms from each plot the first week of Aug and again during the first week of Sep at both locations in 1987. The culms were taken to the laboratory and placed in water-filled flasks, which were enclosed in dark insect rearing cages. Insects emerging from the florets were collected in glass vials (light traps) inserted in the sides of the cages.

The plots treated with insecticides had larger processed seed yields than the control plots in the Saunders Co. field in 1986 but not in either field in 1987. Midges were present in both the treated and control plots. There were no significant differences among the treated and control plots for the number of midge adults collected from racemes from plots at both locations in Aug or Sep in 1987. In addition to the midges, wasps were also collected from the same racemes in both Aug and Sep at both locations in 1987. The wasps tentatively identified as *Tetrastichus* sp. (Hymenoptera: Eulopidae) are presumed to be parasites of the midge. If this presumption is correct the midge population was greater than that indicated by the midge counts and the parasite was not affected by the insecticides.

Treatment and lb ai/A	Seed yield (lb/A)		Germination (%)	Empty florets (%)
	Bulk	Processed		
Saunders County 1986				
Furadan 1.0	258	98	52	42
Orthene 1.0	254	101	52	45
Control	233	77	57	38
F	NS	0.07*	NS	NS
SE	14	7	6	6
Saunders County 1987				
Furadan 1.0	430	161	40	53
Orthene 1.0	420	154	43	50
Control	432	159	36	58
F	NS	NS	NS	NS
SE	21	20	6	7
Cass County 1987				
Furadan 1.0	246	67	34	58
Orthene 1.0	263	76	32	59
Control	255	69	30	59
F	NS	NS	NS	NS
SE	23	11	4	5

*Indicates significance at the 0.05 level of probability, NS indicates Non-significance at the 0.05 level of probability.

Treatment and lb ai/A	Aug (No./25 racemes)		Sep (No./25 racemes)	
	Midge adults	<i>Tetrastichus</i> SP	Midge adults	<i>Tetrastichus</i> SP
	Saunders County 1987			
Furadan 1.0	2.5	1.7	20	53
Orthene 1.0	5.0	8.0	24	56
Control	7.0	0.7	37	43
F	NS	NS	NS	NS
SE	2	2	10	7
Cass County 1987				
Furadan 1.0	3.0	2.2	18	16
Orthene 1.0	2.5	1.2	47	13
Control	7.3	0.7	31	22
F	NS	NS	NS	NS
SE	2	2	10	7

SMOOTH BROME: *Bromus inermis* Leys
LITTLE BLUESTEM: *Schizachyrium scoparium* (Michx.)
 Banks grass mite (BGM); *Oligonychus pratensis* (Banks)

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EFFICACY OF COMITE AGAINST OVERWINTERING BANKS GRASS MITE IN A ROADSIDE DITCH, 1988 AND 1989: This experiment was conducted in a roadside ditch, adjacent to a center-pivot irrigated field of corn located near Dickens, Lincoln Co., NB. This ditch presumably harbored overwintering colonies of BGM, as infestations in the corn adjacent to the ditch occurred on an annual basis since at least 1985. The ditch consisted mostly of smooth brome, interspersed with little bluestem, milkweed, and winged dock. The brome was about 10 cm tall when sprayed, and the adjacent corn was pregermination. Treatment consisted of Comite applied at 5 pts/acre, at the rate of 81 ml of Comite and 15 liters of water per 1500 ft² (plot size) with a Solo 425 backpack sprayer, which delivered approximately 1 liter/min. Experimental design was a randomized complete block with one spray treatment and one untreated check per block, replicated twice in 1988 and 3 times in 1989. Ten randomly selected corn plants in the second row from the edge adjacent to each plot were visually inspected for BGM at the 6-leaf and early tassel stage. One or more adult female BGM constituted an infestation.

In 1988 and 1989, 6-leaf corn adjacent to either the treated or untreated plots showed no differences in percentage infested with BGM. However, corn in the tassel stage showed differences in percentage infested between adjacent treated and untreated plots. There were significantly more tassel-stage plants infested when adjacent to the treated plots in 1988 and for the 1988-89 combined analyses. 1989 data showed only a trend in this respect.