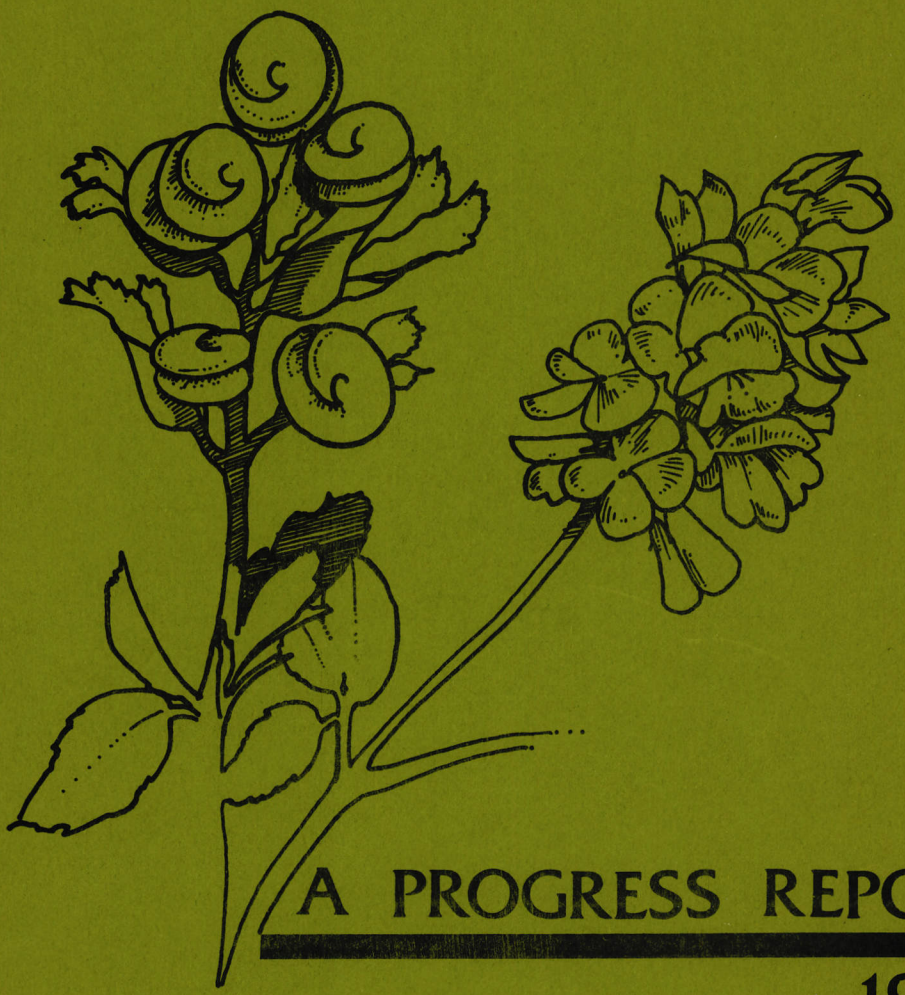
Runcina VOL. 5

Weed and Dodder Control Studies in Alfalfa Seed Production



A PROGRESS REPORT

1975

UNIVERSITY OF CALIFORNIA
COOPERATIVE EXTENSION
FRESNO COUNTY

This is a report of work in progress only. The chemicals and uses contained in this publication are experimental data and should not be considered as recommendations for use.

Until the products and their uses given in this report appear on a registered pesticide label or other legal, supplementary direction for use, it is illegal to use the chemicals as described.

WARNING ON THE USE OF CHEMICALS

Pesticides are poisonous. Always read and carefully follow all precautions and safety recommendations given on the container label. Store all chemicals in their original labeled containers in a locked cabinet or shed, away from food or feeds, and out of the reach of children, unauthorized persons, pets, and livestock.

Recommendations are based on the best information currently available, and treatments based on them should not leave residues exceeding the tolerance established for any particular chemical. Confine chemicals to the area being treated. THE GROWER IS LEGALLY RESPONSIBLE for residues on his crops as well as for problems caused by drift from his property to other properties or crops.

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1720 SOUTH MAPLE AVENUE
FRESNO, CALIFORNIA 93702

A C K N O W L E D G E M E N T

This is a progress report of applied research studies conducted in Fresno County. It was prepared for the Alfalfa Seed Research Board and alfalfa seed growers in appreciation of their support.

Grants supporting vegetation management studies in Fresno County were also received from Amchem Products, BASF Wyandotte Corp., Hercules, Lilly Research, Rhom & Haas, 3-M Company, Sandoz Wander, Shell Chemical Co., Stauffer Chemical Co., District 6 California Beet Growers Association, and the Field Bindweed Eradication Committee of Westside Growers. Their generosity, confidence and encouragement are greatly appreciated.

Without the managerial assistance of Richard Hoover and Fred Fischer of the Westside Field Station and many Fresno County growers, these studies could not have been conducted.

The assistance of Gary McMullin, Extension Field Technologist in conducting the studies is commendable. The efficient secretarial labor of Mrs Rita Cassidy and the art work of Gwen Okamoto in the preparation of this report is praiseworthy.

Herbicides used in the trial were furnished without charge by their manufacturers. Their generosity and cooperation is acknowledged.

Sincerely yours,

BILL B. FISCHER
Farm Advisor

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CO-OPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS, U. S. Department of Agriculture and University of California co-operating.

WEED & DODDER CONTROL STUDIES IN ALFALFA SEED PRODUCTION

PROGRESS REPORT-1975

BILL B. FISCHER*

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SYNOPSIS

An experimental herbicide, H-26905, (O-ethyl-O-(3-methyl-6-nitrophenil) N-Sec-butyl-phosphorothioamidate) provided the most effective dodder control in established alfalfa. H-26905 also controlled attached dodder. In newly planted alfalfa, Dacthal® and the combination of Vegadex® plus Balan® gave the most effective control when preplant incorporated. Postemergence to the weeds and alfalfa Brominal®, Tenoran® and Tok® provided good selectivity and weed control.

INTRODUCTION

Dodder infestation is increasing at an alarming rate not only in alfalfa fields but in other crops that are hosts to this parasitic plant. Therefore, in 1975 emphasis was placed on evaluating herbicides and combinations of herbicides for the control of dodder in alfalfa.

Dodder is an annual plant reproducing from seed that can survive in the soil for decades. It is an obligate parasite, depending entirely on its host for survival. Following seed germination the thread-like stem attaches itself to the host and enters it with root-like structures called haustoria. Following attachment the slender, vigorously growing stem-like strands entwine the host plant and unless control measures are employed, it can destroy it. Dodder infestations are not extensive, generally only 1 to 5% of the field is affected, although in some areas entire fields involving large acreages may become infested.

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At the present time the most widely used method of control is destruction of the vegetative parts of the host plant that is infested with dodder. In annual crops this means the elimination of the crop but alfalfa, being a perennial, will regrow from the crown. Furloe® - CIPC - has provided effective control when applied on wet soil preemergence to the dodder or prior to its attachment to the alfalfa. The conditions required for its effective use are very exacting and in Central California where dodder seed germinates over a long period of time. Furloe® has provided erratic and poor dodder control.

Since dodder infestation appears in scattered areas in fields, it would be desirable to have an herbicide or combination of herbicides that would control not only dodder but other annual weeds as well. Our objective in the 1975 research studies was to evaluate new herbicides and combinations of herbicides for the control of dodder and other annual weeds.

PROCEDURES USED

Nine trials were conducted in 1975, two in newly seeded fields planted in rows on beds spaced 40" or 30" apart. Two trials were conducted in established alfalfa seed fields with 40" row spacing and others were conducted in established alfalfa hay fields.

The herbicides were applied with a CO_2 constant pressure sprayer except in one trial where a commercial type sprayer was used. All trials were replicated in a randomized block design. Herbicides used, rate per acre, date of treatment, soil type, irrigation methods used and individual plot sizes are given in the tables summarizing the results.

In the preplant incorporated study alfalfa stand counts were made in the

center of each plot. Weed control and dodder control evaluations were made when warranted. They were based on a scale of 0 to 10. "0" signifies no weed control and "10" denotes perfect weed control. When injury or vigor ratings were made they were also based on a 0 to 10 scale. "0" denotes no injury or very poor vigor whereas "10" indicates very severe injury or a vigorously growing plant. The results of the evaluations and observations may be summarized as follows:

PREEMERGENCE IN NEWLY PLANTED ALFALFA

Herbicides were applied on the surface of the soil in a newly planted field. Sprinkler irrigations were used to establish a stand, later irrigations were by furrow. The weed population was somewhat sparse in the trial area for reliable evaluation. Therefore, notes were taken mainly to determine the selectivity of the alfalfa to the herbicides, and they can be summarized as follows:

VEGADEX - sulfallate - exhibited good selectivity at 4.0 lb ai/A, but it caused some reduction of stand and vigor at 6.0 lb ai/A.

DESTUN - perfluidone - caused some reduction of the alfalfa stand as well as the vigor at both 3.0 and 6.0 lb ai/A. See Table 1.

H-26905 - severely reduced the alfalfa stand at 3.0 and 6.0 lb ai/A. This herbicide shows no selectivity when applied pre-emergence on newly planted alfalfa.

TUNIC - methazole - showed good selectivity at 2.0 lb ai/A but at 4.0 lb ai/A it reduced the alfalfa stand as well as the vigor. At the higher rate, yellowing (chlorosis) of the alfalfa foliage was also observed. See Table 1.

POSTEMERGENCE IN NEWLY PLANTED ALFALFA

Several herbicides were evaluated to study their effectiveness in controlling weeds and the tolerance of alfalfa seedlings to foliar applied herbicides.

2, 4-DB ester, a widely used herbicide in alfalfa was not included because of space limitation. The primary purpose of this limited study was to explore the feasibility of using herbicides in newly planted alfalfa where the application of 2, 4-DB ester is restricted.

BROMINAL - bromoxynil - as in earlier studies, caused no observable symptoms on the young alfalfa, and it effectively controlled the few shepherds purse, London rocket and lambsquarter seedlings in the plots.

TENORAN - chloroxuron + surfactant caused temporary retardation of the young alfalfa, but six weeks following treatment, the observable growth retardation was insignificant.

TOK - nitrofen - was well tolerated by the alfalfa in its 2 to 3 trifoliate stage of growth, but weeds in the mustard family were not controlled.

SINOX-W - DOW SELECTIVE - dinoseb - plus ammonium sulfate provided good control of weeds and good selectivity. Necrotic spotting and slight burning of the alfalfa leaflets were evident, but this did not adversely effect the growth of the alfalfa.

TOK + SINOX-W - provided very good selectivity and better weed control than obtained with these herbicides used singly.

TENORAN + TOK - at 2.0 lb ai/A each plus a surfactant showed good selectivity and good weed control.

PREPLANT INCORPORATED IN NEWLY PLANTED ALFALFA

Nine herbicides were evaluated, alone and in combinations, for the control of dodder when applied prior to planting of the alfalfa and incorporated into the soil to a depth of 2½ to 3 inches. Individual plots consisted of two beds 35' long. Scarified dodder seed was planted in one of the two rows in each plot. The herbicides were applied in a 12" bend on the top of 30" beds and incorporated with power driven rotary tillers.

The weed population in the trial area was high, therefore, dodder germinating

outside of the herbicide treated bend attached to the weeds, and from there it spread to the alfalfa. May 13th the alfalfa plants with attached dodder were counted in each plot. In Table 3 the average number of attached dodder is given as well as the lowest and highest number of attached dodder found in each treatment.

The results and observations can be summarized as follows:

VEGADEX - sulfallate - incorporated into the soil was more selective than preemergence under sprinkler irrigation. See Table 1 and 3. Poor dodder control was obtained, but this may be due to the heavy weed population. The dodder attached to the weeds and spread to the alfalfa.

Vegadex in combination with other herbicides provided good dodder control, therefore, its evaluation for use in newly planted alfalfa should be further investigated.

EPTAM-EPTC - was selective on the alfalfa but it did not control the dodder and London rocket.

AMEX - butralin - at 1.0 lb ai/A exhibited good alfalfa selectivity but it failed to control dodder. Although not included in this study, the combination of Amex plus Vegadex should be evaluated for dodder control.

BALAN - benefin - as in previous studies showed good selectivity but it was ineffective for the control of dodder.

DACTHAL - chlorthal - showed good alfalfa tolerance at 8.0 and 16.0 lb ai/A although some stand reduction and early retardation of seedling growth was noted but this was not significant. Good but not perfect dodder control was observed at both rates. If EPA approval could be obtained, Dacthal would provide acceptable dodder control in newly planted alfalfa.

FMC-30371 and FMC-30372 - two experimental compounds used at 2.0 and 4.0 lb ai/A reduced the alfalfa stand and the vigor of the emerged seedlings. The further evaluation of these compounds for use in newly planted alfalfa is questionable.

NTN-6867 - at 1.0 lb ai/A was selective on the alfalfa, but at 2.0 lb ai/A it reduced the stand as well as the vigor of the seedlings. It provided good annual weed control but not dodder control.

BALAN + VEGADEX - caused temporary growth retardation of the seedling alfalfa and a 10% reduction in the stand. This combination provided good dodder control to justify its further evaluation.

DODDER CONTROL IN ESTABLISHED ALFALFA

Trials were established in alfalfa seed and alfalfa hay fields. In one trial, established 24 March 1975, the herbicides were incorporated into the soil with rolling cultivators (Lilliston). In the same field, the herbicides applied 14 April were not incorporated. In the alfalfa hay field the herbicides were applied broadcast and not incorporated.

The more significant observations can be summarized as follows:

H-26905 - provided the most effective dodder control without causing any observable injury or growth retardation to the established alfalfa. H-26905 provided somewhat better dodder control when incorporated with rolling cultivators than in the surface applied treatments. See Table 4.

H-26905 in other studies, provided good control of annual grasses and broadleaf weeds. Therefore, it should be further evaluated in established alfalfa for dodder as well as other annual weed control.

DACTHAL - chlorthal - gave more effective dodder control in alfalfa seed fields planted in rows than in hay fields at 10.0 lb ai/A. When compared to the untreated plots, it gave 34% control in hay fields whereas in row planted seed fields the dodder control ranged from 70 to 100%.

KERB - pronamide - incorporated in seed fields at 4.0 lb ai/A provided good dodder control but at 2.0 lb ai/A it was ineffective. In hay fields only 45% dodder control was obtained at 4.0 lb ai/A.

FURLOE - chloropropham - was more effective at 8.0 lb ai/A than at lower rates. The control obtained at 8.0 lb ai/A was 67% in the seed field and only 45% in the hay field.

SENCOR - metribuzin - did not control the dodder. At 4.0 lb ai/A it severely injured the alfalfa in both seed and hay fields. At 2.0 lb ai/A it caused yellowing (chlorosis) of the alfalfa but six weeks after treatment this was not noticeable.

VEGADEX - sulfallate - 20% granular formulation at 4.0 and 8.0 lb ai/A provided 50 and 67% dodder control, respectively, when incorporated with rolling cultivators in the seed field. The same rate applied in a hay field failed to control dodder.

SELECTIVE CONTROL OF ATTACHED DODDER

Control of attached dodder whether in alfalfa or other crops has been achieved by the destruction of the vegetative parts of the host plants with non-selective contact herbicides, such as, dinitro general, weed oil, diesel or butane and propane burners. No selective herbicides have been available that would control the dodder without killing back the vegetative part of the host to which the dodder was attached.

A trial was conducted in a tomato field where dodder was attached to seedling tomatoes. Several herbicides were applied broadcast and it was found that one experimental herbicide, namely, H-26905, effectively arrested the growth of the dodder without injuring the seedling tomatoes.

After observing the control obtained with H-26905 in tomatoes, several trials were established in alfalfa fields infested with dodder. The observations made are as follows:

H-26905 effectively controlled attached dodder without causing injury to the alfalfa. At 8.0 lb ai/A, the highest rate used, temporary deformity of the growing points of the alfalfa was noted.

H-26905 did not kill the dodder. The strands or stems became thickened and darker orange in color. In some trials in the 2.0 lb ai/A treated plots where the dodder growth was extensive at the time of treatment, the dodder resumed its growth about 6 weeks after treatment.

The earlier the herbicide was applied following dodder attachment the more effective was the control. Where application was made before extensive dodder growth the control was effectively maintained at 1.0 and 2.0 lb ai/A.

H-26905 severely injured alfalfa when applied preemergence under sprinkler irrigation or when preplant incorporated. Applied in newly planted fields after the seedling alfalfa was well established, good selectivity was observed.

In the tomato trials H-26905 effectively controlled annual grasses and broadleaf weeds with the exception of sowthistle with good residual activity.

The further evaluation of this herbicide in established alfalfa should be pursued. It should be evaluated for the control of dodder preemergence, and postemergence following attachment.

DODDER AND OTHER ANNUAL WEED CONTROL

"Prevention is the most effective and least expensive method of dodder control" sounds like an often repeated statement. But it is a valid one; therefore, planting dodder-free certified seed, thorough cleaning of combines and other equipment, practicing good sanitation and weed control and not grazing animals that may have grazed in infested fields are sound methods of prevention that are worth repeating.

Once dodder is attached it can be killed only by destroying the vegetative, above ground, growth of the alfalfa. Dodder generally appears as scattered small infestations in the field. Early location of the infested areas and destroying it before it produces seed is very important and it is the least expensive method of control.

Propane or butane fueled burners, weed oil, dinitro general or combinations of these nonselective herbicides have been used very effectively to destroy the dodder without permanently injuring the alfalfa. To insure complete control and to avoid injuring the alfalfa crown, two treatments at 2-to-4 day intervals should be made. The first treatment will wilt and partially destroy the alfalfa stem, and the second treatment will insure complete kill. The application of sufficient heat, oil or dinitro to destroy the alfalfa stems in a single treatment could severely injure the crown and reduce the stand. This has been often observed especially in weak stands and in

newly planted fields.

ANNUAL WEED CONTROL

Annual weed problems in seed alfalfa fields are variable. In some areas winter annual weeds are troublesome; in other areas summer annuals, especially grasses and pigweeds, predominate.

In established fields, following harvest, alfalfa seedlings that sprout from seeds lost during harvest and from natural shattering of pods have to be controlled to maintain the purity of the planted variety.

Seed alfalfa growers have a large number of chemical and mechanical tools for the effective control of unwanted vegetation in their fields. But weed control has to be an integral part of the total management system. The intelligent selection of herbicides, coupled with proper field selection, good seed-bed preparation, skillful application of herbicides can enable a grower to produce a seed crop relatively free of weeds.

A lot of information has been accumulated about the effective use of selective herbicides. A detailed discussion relative to their use was presented in last year's progress report titled, "Vegetation Management in Certified Alfalfa Seed Production." In the following chart the performance of herbicides registered for use in seed alfalfa is briefly summarized. At the risk of over-simplification an outline is presented of the conditions that resulted in the most effective weed control and conditions that resulted in poor control or crop injury.

A weed susceptibility chart is also included to serve as a guide in the selection of herbicides or combination of herbicides. The use of these charts can serve only as a guide. Always read and follow the directions given on the label.

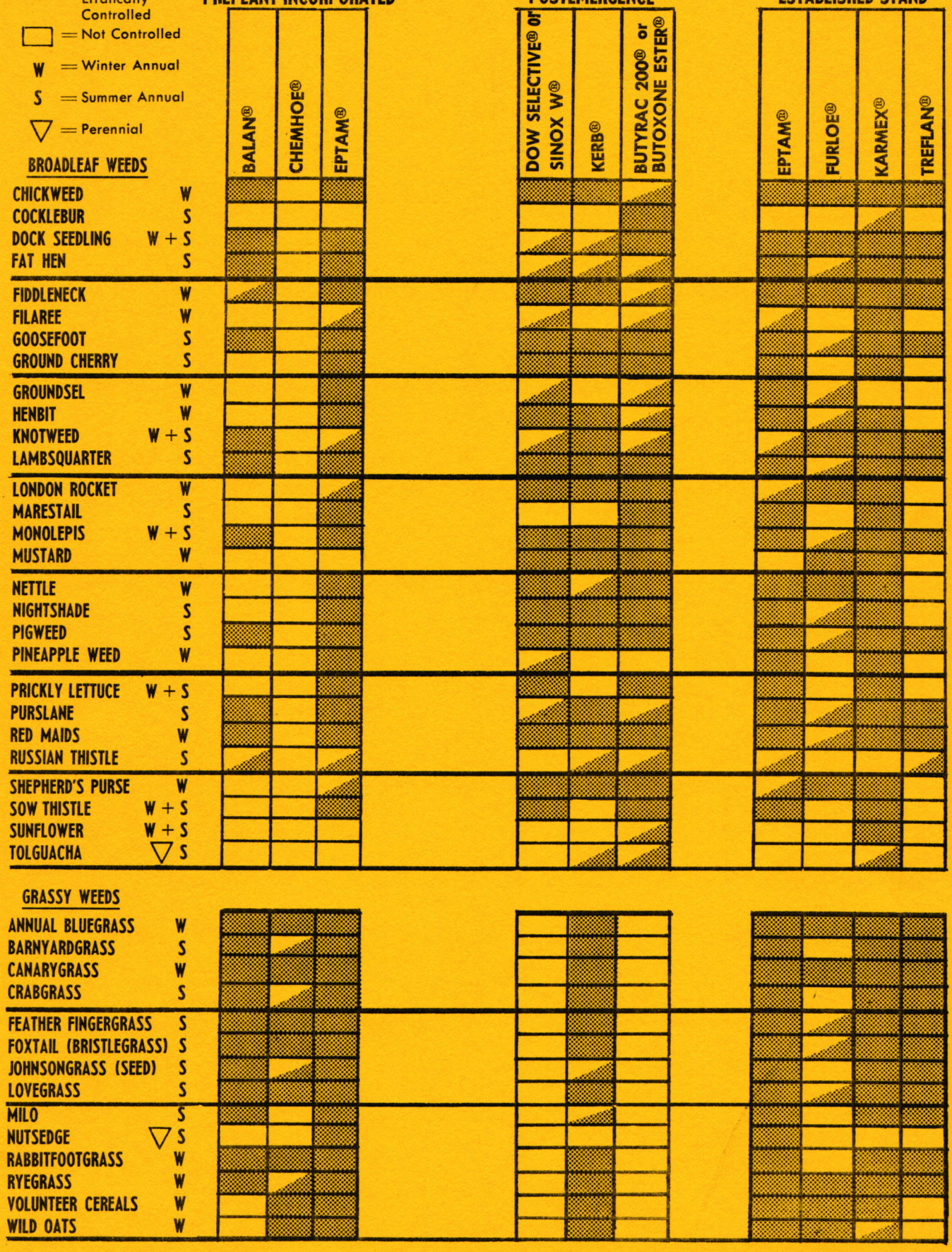
Summary of Herbicide Performance in Seed Alfalfa in the Central San Joaquin Valley

Method of Application	Herbicide	Conditions That Resulted in Most Effective Control	Conditions That Resulted in Poor Control or Injury
Preplant Incorporated	BALAN	Shallow incorporated in well prepared seed bed. When temperature was favorable for rapid seedling growth. Only susceptible weeds were present.	Cool temperature, deep incorporation, volunteer cereals and other resistant species were present.
	EPTAM	Thorough incorporation early fall or in spring planted fields. Where nutsedge was present; where 4 to 8 weeks control was needed.	Winter application, cloddy seed bed and resistant weeds present. Where longer than 6 weeks of residual control was needed.
	CHEMHOE	Where volunteer cereals and canarygrass were the only weeds present. Also post emergence under sprinkler irrigation to control volunteer cereals.	Fields infested with broadleaf weeds. When used as a surface application and not irrigated within 24 hours.
Post-Emergence	DOW SELECTIVE or SINOX - W	When alfalfa had two trifoliate leaves and weeds were not emerged or in their seedling stage and ½ inch of rainfall or sprinkler irrigation was applied following treatment.	When broadleaf weeds were beyond the seedling stage of growth. When grassy weeds were present.
	BUTYRAC 200 or BUTOXONE ESTER	When broadleaf weeds in their seedling stage were the only weeds present.	Broadleaf weeds beyond their seedling stage were present.
	KERB	When alfalfa had two trifoliate leaves and weeds were not emerged or in their seedling stage ; rainfall or sprinkler irrigation was applied following treatment.	When alfalfa was in the seed-leaf or unfoliate leaf stage of growth severe injury occurred. Weeds beyond their seedling stage and/or water was not applied soon after treatment.
Established Stands	KARMEX	When applied on soil free of clods and trash prior to weed seed germination. Addition of dinitro general and weed oil improved weed control when groundsel was present.	Applied on trashy or cloddy soil. Applied after Feb. 1st on non-dormant varieties resulted in injury.
	EPTAM	Applied in the irrigation water and only when thorough wetting of the bed top was obtained. Timely repeated application was made.	Poor water distribution and not wetting the bed top. Repeated application was not made.
	TREFLAN	Thoroughly incorporated with rolling cultivators in fields free of established weeds. Summer annual grasses, pigweeds and lambs-quarter, the only weeds present.	Not incorporated thoroughly or when resistant weed species predominated.
	FURLOE	Applied on wet soil immediately following irrigation provided dodder control if applied prior to attachment and repeated applications were made.	Applied on dry soil and/or repeated applications were not made. Dodder attached prior to treatment.

SUSCEPTIBILITY OF WEEDS TO HERBICIDES USED FOR THE SELECTIVE CONTROL OF WEEDS IN SEED ALFALFA PRODUCTION *

KEY

- = Effectively Controlled
- = Partially or Erratically Controlled
- = Not Controlled
- W = Winter Annual
- S = Summer Annual
- ▽ = Perennial



*This chart is tentative, based on experiments conducted in the Central San Joaquin Valley. Proper timing and accurate application is imperative. Additional information may warrant changes.

Table 1 Weed Control in Seed Alfalfa-Preemergence
CW-10, A-36, F-11, 10, 75-2

Trial Location: Westside Field Station
Soil Type: Panoche Clay Loam
Herbicide Applied: 25 Feb 1975

Plot Size: 18"(on 40" beds) x 20' - 4 reps
Irrigation Method: Sprinkler to establish then furrow
Evaluation: March 25 & April 25

	Herbicide	lb ai/A	Stand Count Weed Control and Vigor Evaluations 1/ Alfalfa Per Ft of Row	Stand % of Untreated	Alfalfa Vigor 3/25	Alfalfa Vigor 4/25	Weed Control	Weeds Present 2/
A	Vegadex	4.0	8.7	119	9.0	10.0	2.0	LSQ
B	Vegadex	6.0	4.6	63	7.3	8.0	3.0	LSQ
C	Destun	3.0	7.0	95	8.0	8.0	7.0	SQ
D	Destun	6.0	6.7	91	5.0	5.0	7.5	SQ
E	H-26905	3.0	1.7	23	1.8	2.0	10.0	---
F	H-26905	6.0	1.6	22	2.0	1.0	10.0	---
G	Tunic	2.0	7.0	96	10.0	10.0	10.0	---
H	Tunic	4.0	3.1	42	7.0	8.0	10.0	---
J	Untreated	---	7.3	100	9.0	10.0	0	LSQ

1/ Ratings are based on a 0 to 10 scale - 0=no weed control or very poor alfalfa Vigor - 10 = perfect weed control or vigorously growing alfalfa

2/ Weeds present: L=London Rocket, S=Shepherds Purse, Q=Lambsquarter

Table 2 Weed Control in Seed Alfalfa-Postemergence
CW-11, A-36, F-11, 10, 75-2a

Trial Location: Westside Field Station
Soil Type: Panoche Clay Loam
Alfalfa Planted: 25 Feb 1975

Herbicides Applied: 3 Apr 1975
Irrigation Method: Furrow

	Herbicides	lb ai/A	Alfalfa Injury, Vigor & Weed Control Evaluations 1/ Alfalfa Injury 3/25	Alfalfa Vigor 4/25	Weed Control
A	Brominal	1.0	0	10.0	9.0
B	Tenoran X-77	2.0 0.5%	2.0	8.5	10.0
C	Tok WP X-77	4.0 0.5%	0	10.0	7.0
D	Sinox-W Ammonium Sulf.	1.0 2.0	2.0	10.0	9.5
E	Tenoran Tok WP X-77	2.0 2.0 0.5%	1.0	9.0	10.0
F	Tok WP Sinox W	4.0 1.0	2.0	10.0	10.0
G	Untreated	---	0	10.0	0

1/ Evaluations based on a 0 to 10 scale - 0=no weed control, no injury or poor vigor, 10=perfect weed control, severe injury or vigorously growing alfalfa.

Table 3 Evaluation of Herbicides for Dodder and Annual Weed Control
Preplant Incorporated
CW-10, A-36, F-11, 10, 75-4

Trial Location: Westside Field Station-Field 20 Evaluated: April 23, May 1, 13, 14, 1975
Soil Type: Panoche Clay Loam Plot Size: 5'x35' - 4 reps
Established: 31 March 1975 Irrigation Method: Furrow

			Stand - Vigor - Weed and Dodder Control Evaluations[1]								
			Alfalfa Stand April 23		Alfalfa Vigor				Attached Dodder May 13		
			Per Ft of Row	Percent of Check	May 1	May 14	Weed Control[2] Grasses	Weed Control[2] Broadleaf	Avg[3] Plot	Range[4] Treatment
	Herbicides	lb ai/A								
A	Vegadex	4.0	6.3	102	8.8	9.0	1.8	1.8	5.0	1-8
B	Vegadex	6.0	5.9	96	9.3	9.3	4.3	6.0	4.3	1-7
C	Vegadex	8.0	6.6	106	9.5	9.0	4.0	4.0	1.8	1-4
D	Eptam	3.0	4.5	73	7.3	9.0	8.0	2.3	4.8	1-8
E	Eptam	6.0	6.2	100	8.8	7.5	6.5	3.8	11.0	5-18
F	Amex 820	1.0	6.1	98	8.8	8.8	10.0	8.8	2.5	0-6
G	Balan	1.5	7.0	114	9.8	9.8	10.0	10.0	3.8	2-6
H	FMC 30371	2.0	5.9	96	4.3	5.0	10.0	8.0	2.8	0-6
I	FMC 30371	4.0	4.5	73	2.8	2.5	10.0	8.0	5.0	3-7
J	FMC 30372	2.0	6.2	101	4.3	4.0	10.0	9.3	6.0	2-12
K	FMC 30372	4.0	5.7	92	1.0	2.0	10.0	9.5	2.5	1-4
L	Dacthal	8.0	5.6	90	7.8	8.0	10.0	10.0	1.5	1-3
M	Dacthal	16.0	5.1	83	7.8	8.8	10.0	10.0	0.25	0-1
O	NTN 6867	1.0	6.7	108	8.0	9.5	10.0	9.8	3.5	1-5
P	NTN 6867	2.0	5.2	84	7.0	8.0	10.0	9.8	1.8	1-4
Q	Amex 820 + IPC	1.0 + 4.0	5.9	96	7.0	8.5	10.0	9.0	5.8	1-10
R	Amex 820 + IPC	1.0 + 6.0	5.0	80	6.0	6.8	10.0	7.8	3.5	0-7
S	Balan + Vegadex	1.0 + 4.0	5.6	90	8.5	8.5	10.0	9.2	0.5	0-2
T	Dacthal + Vegadex	8.0 + 4.0	6.6	106	6.5	8.5	9.0	6.8	2.0	0-4
U	Dacthal + Eptam	8.0 + 2.0	5.2	84	7.5	7.8	10.0	9.8	3.0	2-5
V	Untreated	---	6.2	100	8.5	9.0	0	0	9.0	3-14

1/ Weed control and vigor evaluations are based on a 0 to 10 scale; 0-no weed control or very poor vigor; 10=perfect weed control or vigorously growing plant.
2/ Weeds present: Barnyardgrass, lambsquarter, monolepis, sowthistle.
3/ Alfalfa plants with attached dodder were counted. Values are the average of 4 reps.
4/ The range refers to the lowest and highest number of dodder attached to alfalfa found in the treatment.

Table 4 Evaluation of Herbicides for Dodder Control in Alfalfa
Established Seed Field
CW-10, A-36, F-11, 10, 75-3

Trial Location: Belmont Ave. ¼ mile west of San Diego, Mendota
Soil Type: Panoche Loam Irrigation Method: Furrow
Plot Size: Trial 10' x 50'

			Dodder Control Evaluation Average of 3 Reps			
Applied: 24 March 1975-Incorp.			May 1	Aug 9		
	Herbicide	lb ai/A	Average No. Infested Area	Average No. Infested Area	Range Per Treatment	% Control Compared to Untreated
A	Antor Gr	2.0	2.0	3.0	1-6	25
B	Antor Gr	4.0	1.6	2.3	1-4	42
C	Destun Gr	3.0	2.0	3.0	1-4	25
D	Destun Gr	6.0	2.6	2.3	1-4	42
E	H-26905 EC	3.0	0	0	0	100
F	Sencor WP	2.0	2.0	4.3	0-8	0
G	Sencor WP	4.0	1.6	4.0	1-7	0
H	Vegadex Gr	4.0	1.6	2.0	1-3	50
J	Vegadex Gr	8.0	1.0	1.3	0-4	67
K	Furloe Gr	4.0	1.0	2.0	1-5	50
L	Furloe Gr	8.0	0	1.3	1-2	67
M	Dacthal WP	10.0	0	0	0	100
N	Dacthal WP	15.0	0	1.2	0-2	70
P	Kerb Gr	2.0	1.6	4.6	1-7	0
Q	Kerb Gr	4.0	0	0	0	100
R	Untreated	---	2.0	4.0	3-5	0
Applied: 14 April 1975-Not Incorporated						
S	H-26905 EC	2.0	---	1.6	0-3	60
T	H-26905 EC	4.0	---	0.6	0-1	85
U	Kerb WP	2.0	---	2.0	1-3	50
V	Kerb Gr	2.0	---	2.0	1-3	50
W	Dacthal WP	8.0	---	0	0	100
X	Furloe Gr	4.0	---	3.0	1-4	25
Y	Vegadex Gr	4.0	---	3.6	3-5	10
Z	Destun Gr	3.0	---	3.0	1-6	25

Remarks: Following the application of herbicides on 24 March 1975, the trial area was cultivated with sectioned rolling cultivators; hence, the herbicides were incorporated into the soil and germinated dodder seedlings were destroyed. The April 14 treatments were not incorporated.

Table 5 Evaluation of Herbicides for Dodder Control in Alfalfa
Established Hay Field
CW-10, A-36, F-11, 10, 75-1

Trial Location: Section 2, Field 3&4, Murietta Farms, Mendota
Soil Type: Panoche Loam
Herbicides Applied: 27 & 28 February 1975
Irrigation Method: Flood (Border check)
Plot Size: Trial A 10' x 200' - 3 reps
Trial B 20'x40' - 4 reps
Evaluated: 3 July 1975

Trial A:

	Herbicides	lb ai/A	Dodder Control Evaluation: Average Number Areas Infested	Range Per Plot	% Control Compared to Untreated
A	Vegadex 20G	4.0	15.6	1-30	0
B	Vegadex 20G	8.0	11.3	2-18	0
C	Furloe 20G	4.0	8.6	4-18	10
D	Furloe 20G	8.0	5.3	2-7	45
E	Dacthal 75 WP	10.0	6.3	1-14	34
F	Kerb 50 WP	2.0	7.6	2-12	21
G	Kerb 50 WP	4.0	5.3	2-8	45
H	Untreated	---	9.6	0-17	0

Trial B:

	Herbicides	lb ai/A	Alfalfa Injury	% Dodder Control 1/
J	Antor 5G	3.0	0	20
K	Antor 5G	6.0	0	40
L	H-26905 4EC	3.0	0	90
M	H-26905 4EC	6.0	0	100
N	Destun 4EC	3.0	0	0
P	Destun 4EC	6.0	0	10
Q	Sencor 50WP	2.0	3.0	20
R	Sencor 50WP	4.0	9.0	80 2/

1/ Dodder infestation was sparse in the area where Trial B was established, therefore, the dodder control evaluation may not be reliable.
2/ May be due to the severe injury and lack of alfalfa top growth.

Table 6 Dodder Control in Seed Alfalfa-Post Attachment

Trial Location: Westside Field Station
Soil Type: Panoche Clay Loam
Alfalfa Planted: 31 March 1975
Plot Size: 40" x 35' - 4 reps
Herbicides Applied: 27 May 1975
Irrigation Method: Furrow

	Herbicide	lb ai/A	Percent Dodder Control 1/ 6/11	6/27
A	H-26905	0.5	20	10
B	H-26905	1.0	50	40
C	H-26905	2.0	65	80
D	H-26905	4.0	80	80
E	Untreated	---	0	0

1/ Dodder was not killed, only arrested in growth. Dodder control ratings were made in comparison with the untreated plots.

Table 7 Dodder Control in Alfalfa Hay-Post Attachment

Trial Location: ¼ mile west of Lyon Ave across from Coit Ranch Hdq
Soil Type: Panoche Clay Loam
Plot Size: 5' x 20' - 4 reps
Alfalfa Planted: October 1974
Herbicides Applied: 22 May 1975
Irrigation Method: Basin flood

	Herbicides	lb ai/A	Percent Dodder Control 1/ 12 June	3 July
A	H-26905	0.5	20	10
B	H-26905	1.0	60	60
C	H-26905	2.0	75	70
D	H-26905	4.0	80	80
E	H-26905	8.0	80	80
F	Untreated	---	0	0

Remarks: Dodder was attached and growing vigorously at the time of the trial establishment. Following treatment the growth of the dodder was arrested and the alfalfa continued growing, therefore, masking the presence of the dodder. Ratings based on visual appearance of dodder growth in the treated plots compared to the untreated. Close examination revealed the presence of the dodder below the alfalfa canopy.

CORRECTIONS

Please make the following corrections and additions in the following tables:

Table 2 The plot size should read: 40" x 20'

Herbicide was applied in 60 gallons of water per acre and X-77 was added at ½% of the operating volume.

Table 5 In Trial "A" the average number of areas infested with dodder refers to the average number of dodder infested "spots" counted in the plots. Range per plot indicates the lowest and the highest number of infested areas found in each treatment.

In Trial "A" the plot size should be: 20' x 200'.

* *
* *
* In this progress report trade names of herbicides *
* are used to simplify communication. The trade *
* names are capitalized and are registered with *
* and protected by patents issued by the United *
* States Government. *
* *
* *

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