RUNCINA VOL. 43

WEED CONTROL IN MELONS



A PROGRESS REPORT 1989 APPLIED RESEARCH

UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION
FRESNO COUNTY

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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.

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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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NOVEMBER, 1989
450 copies

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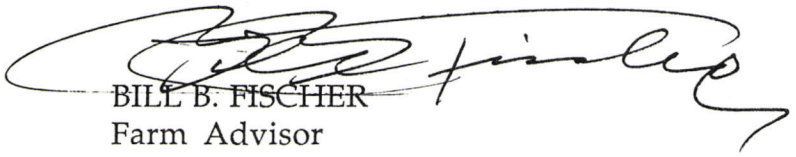
The studies summarized in this progress report were generously supported by the California Melon Research Board. We are grateful to members of the Board as well as to melon growers and packers for their encouragement and confidence.

This progress report contains no recommendations for the use of herbicides in the production of cucurbits. The purpose of the report is to convey the results of our applied research studies to our cooperators and other interested individuals and organizations.

We are indebted to many individuals for their help. We especially wish to thank Juan Berrera, of Harris Farms, for the use of their equipment for the application of metham. We express our appreciation to Jimmy Ross, Superintendent of the West Side Field Station, to Richard Schetter, Principal Agriculturist, and to other members of the field station staff for their labor and cooperation.

The editorial assistance of Heidi Seney, Editor, U.C. Ag Publications, Oakland, and Jane Waugh in the preparation of this report is greatly appreciated.

We are especially thankful to Ms. Nancy Shaw for her secretarial help not only in the preparation of this report but also in summarizing the collected field data. We also thank James Caughell, our printer, for the preparation of this progress report.



BILL B. FISCHER
Farm Advisor

Runcina is the title of progress reports of applied research studies of weeding conducted in Fresno County. It contains no recommendations for the use of herbicides.

Runcina was the goddess of weeding worshipped during the Augustinian period. ariations such as runco, erunco and runciato acquired the meaning of weeding.

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WEED CONTROL IN MELONS

A Progress Report of 1989 Applied Research

Bill B. Fischer, Kurt J. Hembree, and Byron D. Black*

Synopsis

Preplant incorporated application of Alanap (naptalam), in combination with Prefar (bensulide) or Devrinol (napropamide), provided effective weed control at crop emergence and excellent tolerance on six varieties of melons. Postemergence application of Alanap plus Treflan (trifluralin) resulted in good seasonal weed control. These treatments were applied on melons grown on conventional 80-inch bed spacing. Similar treatments were evaluated on six varieties of melons on 66-inch bed spacing with similar results.

Metham, a soil fumigant sold under the names of Metam, Sectagon II, Soil-Prep, Vapam, etc., applied with a spray-blade 6 days before planting of the melon in 8-inch bands, provided excellent weed control at crop emergence with good crop selectivity. Alanap plus Treflan applied postemergence resulted in good seasonal weed control on 80- as well as on 66-inch bed spacings. No statistically significant differences in yields were obtained among the treatments.

Introduction

Unwanted competing vegetation (weeds) continues to concern melon growers in California. Weeds can be effectively controlled with repeated cultivations and hand hoeing soon after crop emergence and until stem elongation. However, the effectiveness of hand weeding and mechanical tillage is short lived and at harvest the fields are often heavily infested with weeds that can adversely affect yield and reduce the efficiency of harvest. The increasing costs of labor, fuel, and mechanical equipment dictate the need for evaluating more effective, longer lasting, and less costly weed control methods. This search must continue because we are observing shifts in the weed population and the few selective herbicides presently labeled for use in melons may be in jeopardy as a consequence of the costly review of their registration required by the Environmental Protection Agency (EPA).

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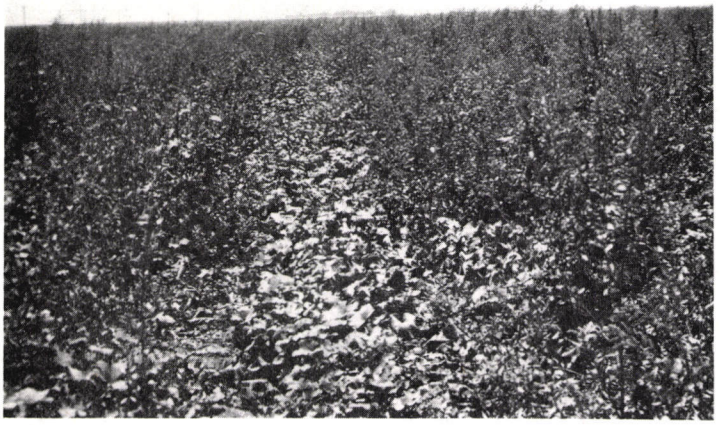
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Cantaloupe Harvest



Harvesting and Field
Packing Cantaloupes





Regardless of the method of harvest, it can be accomplished more efficiently and more economically in fields where the weeds are effectively controlled, as pictured on the right, than in weed infested fields, above left.



Harvesting and Field
Packing Crenshaw Melons



Honeydew Harvest

Significant increases in the population of several species of weeds in the nightshade (Solonaceae) family have occurred during the 1980's in the central San Joaquin Valley. This shift in the weed spectrum has seriously affected tomato production. Weeds in the nightshade family have become troublesome in all crops grown in rotation with tomatoes, and to control them in tomatoes metham, a soil fumigant, is used extensively. Metham, an excellent biocide, can provide weed control as well as good control of other organisms detrimental to tomatoes, melons, and other crops.

In studies summarized here the effectiveness of metham to control weeds at crop emergence was compared with other preplant-incorporated, selective herbicides. The use of metham, as well as other herbicides, was evaluated on beds spaced on 80- and 66-inch centers. The rationale for this approach was to investigate the feasibility of growing melons using the same equipment that is used in tomato production and reducing the need for manipulating the soil when growing melons on 80-inch row spacing.

Procedures

Separate replicated trials were conducted with each variety of melon at the West Side Field Station on Panoche clay loam soil with organic matter content of less than 1 percent. In one series of trials the field was listed on 40-inch centers and preirrigated. Metham was applied March 30 with a subsurface blade in 8-inch-wide strips and covered (capped) with 2-1/2 to 3 inches of soil on every other 40-inch bed. The preplant incorporated herbicides were applied April 4 on 40-inch beds. The following day, April 5, the caps were removed from the metham-treated areas and the melons were planted in the metham as well as in the preplant herbicide-treated beds.

Following crop emergence, stand counts, melon vigor ratings and weed control evaluations were made April 28. Following evaluations, thinning, and removal of the surviving weeds from all plots, every other 40-inch bed was split to obtain 80-inch row spacings. The postemergence treatments were applied March 3 and incorporated with sectioned, rolling cultivators; two passes were made through all plots.

66-Inch Bed Spacing

In a second series of trials the beds were listed on 66-inch centers. Metham was applied March 30 at 50 and 75 gallons per acre in 8-inch-wide strips in the center of the beds using a spray blade. A 2-1/2- to 3-inch soil cover "cap" was built over the treated strip. On other beds herbicides were applied April 4 and incorporated with power-driven rotary tillers. All plots were planted April 5. In the metham-treated plots the soil "cap" was removed with a crowder mounted in front of the planter.

Following crop emergence, weed control, crop tolerance, and stand counts were made. On May 3 the postemergence treatments were applied and incorporated with sectioned, rolling cultivators; two passes were made through all plots.

The herbicides were applied with an experimental sprayer using compressed air as a propellent in 23 gallons of water per treated acre. Metham was applied, undiluted, with a spray blade using CO_2 as a propellent. The rates of herbicides, methods of application, irrigation method, and other pertinent information are given in the tables summarizing the evaluations.

Stand counts in all trials were determined by counting the melons in 4-foot by 6-inch areas in the center of each plot; the values presented in the tables are the average number of plants per foot of bed. The values for weed counts represent the average number of plants in a 6-inch by 1-foot area.

Untreated areas were not included to reduce the cost of hand weeding. Alanap plus Prefar treatments were assumed as standard for comparison.

Yield data were obtained by harvesting all melons, except watermelons, from 15 feet in the center of each plot. The melons were sized and graded. The watermelons were counted in the entire length of the plots. The data are presented in the tables following this narrative.

Cucumbers were also included in the trials on 80- as well as on 66-inch bed spacings. The procedures used were the same except that the treatments were replicated only twice and no postemergence herbicides were applied. Cucumber yields were obtained by harvesting all cucumbers from the entire length of each plot six times at 2- to 4-day intervals.



Subsurface application of metham with spray blades.



Soil profile showing the depth of blading and the soil cover - "cap."



Effective control of black nightshade was obtained with sub-surface blading of metham five days prior to planting of the cantaloupe seeds.

Herbicide Residue and Plant-Back Study

Four herbicides at varying rates were included in a trial to evaluate their persistence in the soil and to study the tolerance of different crops that could be planted sequentially following their use. This is a bioassay study to determine at what rates (pounds of active ingredients per acre) these herbicides may cause phytotoxicity. No chemical analysis were made to determine quantitatively the residual amounts of herbicide or degradation products that may be present in the soil. Summaries of the data collected are included in this report.

Results

The feasibility of using metham before planting melons and cucumbers to control weeds at crop emergence was clearly demonstrated. With postemergence application of Alanap plus Treflan, seasonal weed control can be maintained.

Neither metham nor Alanap, nor Alanap in combination with Prefar or Devrinol, provided 100 percent weed control. However, the few weeds that survived in the treated areas were removed during thinning and cultivation at minimal cost.

The postemergence treatments provided excellent broad spectrum weed control without any evidence of phytotoxicity.

From earlier studies and observations made in commercial fields, it is essential to emphasize that two passes with sectioned, rolling cultivators are required for thorough incorporation of herbicides to insure good weed control.

Less effective weed control was obtained in areas treated with Alanap applied alone than when used in combination with Prefar or Devrinol.

Poor weed control was observed in commercial fields when Alanap plus Treflan were applied on wet or cloddy soil where thorough incorporation could not be obtained. One pass, rather than two passes with sectioned, rolling cultivators, also resulted in erratic weed control.

No statistically significant differences in yield, size, and maturity were obtained in any of the melon varieties.





Postemergence applied herbicides should not be applied on wet, cloddy soil depicted above.

Proper incorporation with sectioned, rolling cultivators, shown on the left, cannot be achieved in cloddy soils.

Effective weed control can best be obtained when the soil is free of clods and two passes, as illustrated below, are made over the same area with rolling cultivators.



Metham provided excellent weed control when applied with a spray blade. For control of seedling diseases or nematodes, different methods of application may be required.

Conclusion

As in earlier studies, it was again demonstrated that Alanap in combination with Prefar or Devrinol can effectively control a broad spectrum of weeds with good crop tolerance. To maintain effective weed control through harvest, postemergence application of Alanap in combination with Treflan is required in most fields.

Many growers find that in preirrigated fields, where the soil can be mulched before planting, weeds may not emerge until the first crop irrigation. Under these conditions, only postemergence (lay-by) treatments are required.

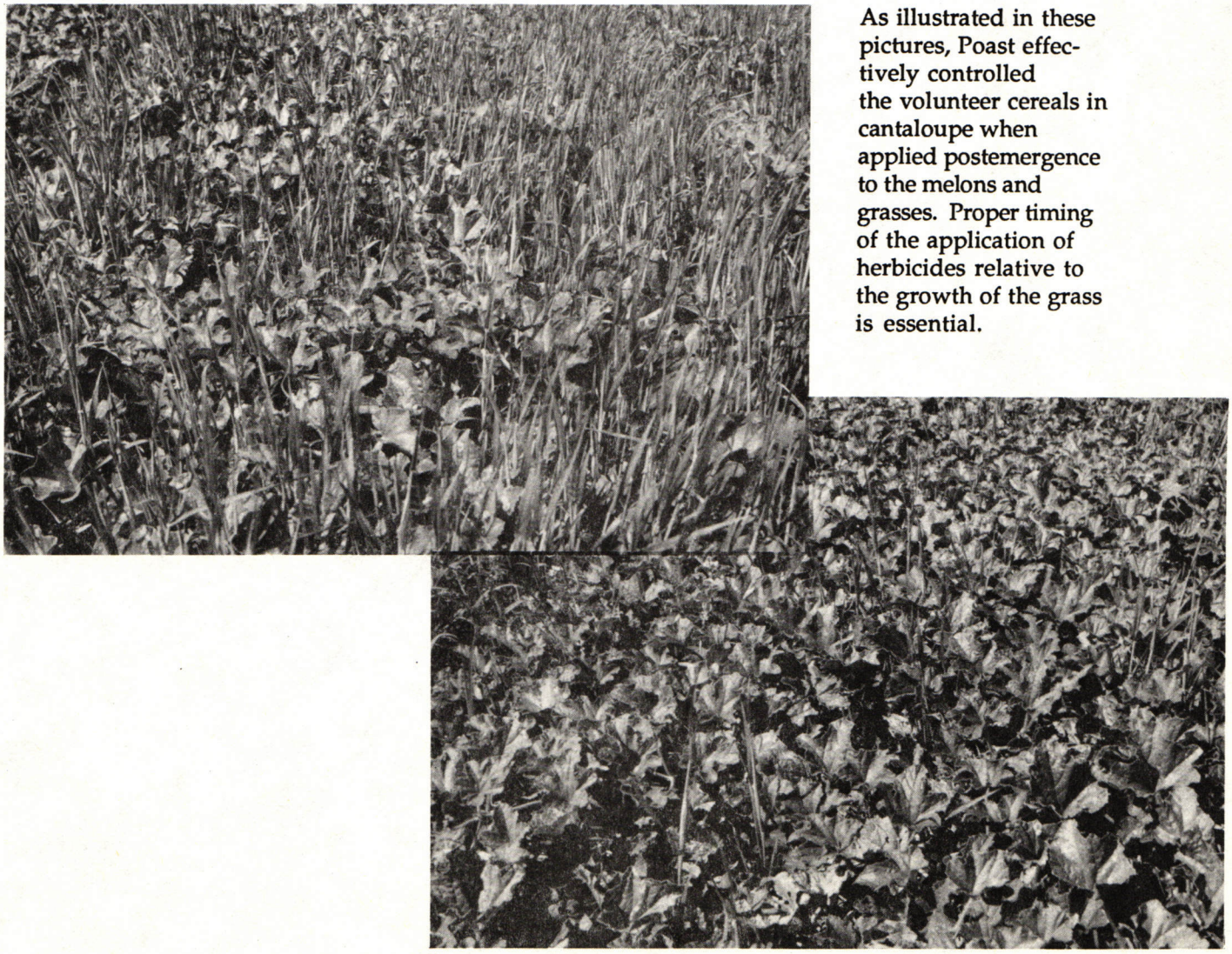
The application of metham with spray blades a few days before planting can effectively control weeds at crop emergence. Successful use of metham requires that the soil be moist and free of clods. Additional information about the use of metham for weed control is summarized in Runcina, Vol. 42. Copies of this report are available free of charge at the Farm Advisors' Office, 1720 S. Maple Avenue, Fresno, CA 93702.

In trials conducted during 1983-86, the effectiveness of ethalfluralin, applied postemergence as a directed spray on cucurbits, effectively controlled weeds, including those in the nightshade family. These studies were summarized in Runcina, Vol. 28, published in 1985 (out of print).

In California, the sale of ethalfluralin for use in cucurbits was discontinued in 1986. Information has been received that the labeling of ethalfluralin under the trade name of "Curbit" was submitted for approval to the California Department of Food and Agriculture (CDFA), and this herbicide may be available to melon growers during the 1990 growing season. If labeling is approved, "Curbit" could be substituted for Alanap plus Treflan. It must be emphasized that this herbicide will have to be applied as a directed spray and, like Alanap plus Treflan, will require incorporation,.

In earlier studies it was observed that ethalfluralin, sprayed on the foliage of cucurbits, caused symptoms similar to those caused by trifluralin. While the symptoms were evident on the sprayed foliage, subsequently developed leaves were not affected.

Poast (sethoxydim) was granted full registration during 1989 to control grasses in cucurbits.



As illustrated in these pictures, Poast effectively controlled the volunteer cereals in cantaloupe when applied postemergence to the melons and grasses. Proper timing of the application of herbicides relative to the growth of the grass is essential.

TABLE 1 - EFFECT OF PREPLANT AND POSTEMERGENCE APPLIED HERBICIDES ON SHIPPER CANTALOUPE STAND, VIGOR AND WEED CONTROL
02, 43, 425, 153, 10, 89-2

LOCATION: West Side Field Station, Fld. 35-41
SOIL TYPE: Panoche clay loam
VARIETY: Shipper
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION METHOD: Furrow
PLOT SIZE: 1 bed (80") x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

			MELON COUNT, WEED CONTROL AND VIGOR EVALUATIONS/1 ft. OF BED				
TREATMENT	Lbai/A	Date & Method	Number of Melons	Vigor*	# of Brdlf. Weeds	# of Grasses	Weeds Present**
Alanap	4.0	4/4 PPI	2.6	10.0	0.7	0	I,Ni
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	2.4	9.8	0	0	---
Devrinol	1.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	1.9	10.0	1.6	0.9	B,I,Ni
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	2.8	10.0	0.4	0.1	B,I,Ni
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	2.8	9.8	0.8	0	I,Ni
Devrinol	2.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Metham	75 gpa	3/30 PPI	2.4	10.0	0.1	0.1	B,Ni

*Vigor rating based on a scale of 0 to 10. 0 = dead plants, 10 = vigorously growing plants.

**WEEDS PRESENT: B = barnyardgrass, I = pigweed, Ni = nightshade,

NOTE: PPI = preplant incorporated, PE = postemergence
Postemergence (PE) treatments were applied after the evaluations presented in this table.

9648A

TABLE 2 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF CANTALOUPES
02, 43, 425, 153, 10, 89-2

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Cantaloupe, Shipper
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 80" X 40', Reps. 4
PLANTED: 4/5/89
HARVESTED: 7/12/89
HARVESTED AREA: 1 bed (80" X 15')

			NUMBER OF MELONS FROM 80" x 15" AREA IN CENTER OF PLOT*										
			Larger Than 27's		27's		36's		45's		Smaller Than 45's		Total
HERBICIDES	Lb.ai/ Acre	Date Appld.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Melons
Alanap	4.0	4/4 PPI											
Prefar	4.0	4/4 PPI	0.5	4.3	4.3	8.0	4.5	12.5	2.3	5.8	1.3	5.8	49.3
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	1.0	4/4 PPI	1.0	4.3	3.3	9.3	7.8	9.8	1.8	5.0	1.0	4.8	47.8
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Alanap	4.0	5/3 PE	2.0	4.0	5.8	7.5	6.3	7.0	5.3	5.0	1.8	2.5	42.3
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Prefar	4.0	4/4 PPI	0.3	2.0	3.0	8.5	7.3	15.0	3.0	8.0	0.8	4.8	52.8
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	2.0	4/4 PPI	1.8	4.3	4.5	7.8	8.0	8.5	2.5	4.8	0.8	2.3	45.5
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Metham	75 gpa	3/30 PPI											
Alanap	4.0	5/3 PE	2.5	5.0	5.3	9.3	6.7	8.0	3.2	4.2	0.7	2.8	48.4
Treflan	0.5	5/3 PE											
STAT. NOTATION LSD @5%			NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

9709A

TABLE 3 - EFFECT OF PREPLANT AND POSTEMERGENCE APPLIED HERBICIDES ON HYBRID CANTALOUPE STAND, VIGOR AND WEED CONTROL
02, 43, 425, 153, 10, 89-1

LOCATION: West Side Field Station, Fld. 35-41
SOIL TYPE: Panoche clay loam
PLANTED: 4/5/89
VARIETY: Hybrid, Top Score
HERBICIDES APPLIED: Metham, 3/30/89
PPI, 4/4/89
PE, 5/3/89

IRRIGATION METHOD: Furrow
PLOT SIZE: 1 bed (80") x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

			MELON COUNT, WEED CONTROL AND VIGOR EVALUATIONS/1 ft. OF BED				
TREATMENT	Lbai/A	Date & Method	Number of Melons	Vigor*	# of Brdlf. Weeds	# of Grasses	Weeds Present**
Alanap	4.0	4/4 PPI	2.1	10.0	0.6	0	I,Pu
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	1.8	9.8	0.3	0	Ni
Devrinol	1.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	2.3	9.5	1.1	0.2	B,I,Ni,Ps
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	2.2	10.0	0.3	0	I
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	2.3	9.3	0.2	0	I,Ni
Devrinol	2.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Metham	75 gpa	3/30 PPI	2.1	9.7	0.1	0.1	B,I

*Vigor rating based on a scale of 0 to 10. 0 = dead plants, 10 = vigorously growing plants.

**WEEDS PRESENT: B = barnyardgrass, I = pigweed, La = lambsquarter, Ni = nightshade, Ps = purslane, Pu = puncturevine

NOTE: PPI = preplant incorporated, PE = postemergence
Postemergence (PE) treatments were applied after the evaluations presented in this table.

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TABLE 4 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON STAND COUNT AND VIGOR IN HYBRID CANTALOUPES
02, 43, 425, 153, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Hybrid Cantaloupe, Top Score
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then Furrow
PLOT SIZE: 1 bed 80" x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

HERBICIDES	Lb.ai/ Acre	Date Applied	STAND COUNT AND VIGOR EVALUATIONS, AVERAGE OF 4 REPS. # Melons/ Ft. of Bed	Melon Vigor*	# Brdlvs./ Ft. of Bed	# Grasses/ Ft. of Bed	Weeds Present**
Alanap	4.0	4/4 PPI					
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	2.1	10.0	0.6 AB	0	I,Ps
Alanap	4.0	4/4 PPI					
Devrinol	1.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	1.8	9.8	0.3 BC	0	Ni
Alanap	6.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	2.3	9.5	1.1 A	0.2	B,I,Ni,Ps
Alanap	6.0	4/4 PPI					
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	2.2	10.0	0.3 BC	0	I
Alanap	4.0	4/4 PPI					
Devrinol	2.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	2.3	9.3	0.2 C	0	I,Ni
Metham	75 gpa	3/30 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE	2.1	9.7	0.1 C	0.1	B,I
STATISTICAL NOTATION LSD @5%			N.S.	N.S.		N.S.	
C.V.					97.07		

NOTE: Values followed by the same letter are not statistically significant at the 5% level.

*Vigor based on a 0 to 10 scale: 0 = no vigor, 10 = vigorously growing plants.
**Weeds Present: B = barnyardgrass, I = pigweed, Ni = nightshade, Ps = purslane

NOTE: PPI = preplant incorporated, PE = postemergence applied
Postemergence (PE) treatments were applied after the evaluations presented in this table.

TABLE 5 - EFFECT OF PREPLANT AND POSTEMERGENCE APPLIED HERBICIDES ON HONEYDEW STAND, VIGOR AND WEED CONTROL
02, 43, 425, 153, 10, 89-3

LOCATION: West Side Field Station, Fld. 35-41
SOIL TYPE: Panoche clay loam
VARIETY: Honeydew, Green Flesh
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION METHOD: Furrow
PLOT SIZE: 1 bed 80" x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

			MELON COUNT, WEED CONTROL AND VIGOR EVALUATIONS/1 FT. OF BED				
TREATMENT	Lbai/A	Date & Method	Number of Melons	Vigor*	# of Brdlf. Weeds	# of Grasses	Weeds Present**
Alanap	4.0	4/4 PPI	1.9	10.0	0.8	0.1	B,I,Ni
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	1.3	9.8	0.5	0.1	B,I,Ni
Devrinol	1.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	1.3	9.8	2.1	0.9	B,I,La,Ni
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	6.0	4/4 PPI	1.3	10.0	0.6	0.1	B,I,Ni
Prefar	4.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Alanap	4.0	4/4 PPI	1.1	9.5	0.3	0.1	B,I,Ni
Devrinol	2.0	4/4 PPI					
Alanap	4.0	5/3 PE					
Treflan	0.5	5/3 PE					
Metham	75 gpa	3/30 PPI	1.3	10.0	.04	0.2	B,I

*Vigor rating based on a scale of 0 to 10. 0 = dead plants, 10 = vigorously growing plants.

**WEEDS PRESENT: B = barnyardgrass, I = pigweed, La = lambsquarter, Ni = nightshade,

NOTE: PPI = preplant incorporated, PE = postemergence
Postemergence (PE) treatments were applied after the evaluations presented in this table.

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TABLE 6 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF HONEYDEW MELONS
02, 43, 425, 153, 10, 89-3

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Honeydew, Green Flesh
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 80" X 40', Reps. 4
PLANTED: 4/5/89
HARVESTED: 7/26/89
HARVESTED AREA: 1 bed (80" X 15')

HERBICIDES	Lb.ai/ Acre	Date Appld.		NUMBER OF MELONS FROM 80" x 15" AREA IN CENTER OF PLOT* Greater Than 4's.	4's	5's	6's	8's	Smaller Than 8's	Total Melons
Alanap	4.0	4/4	PPI	0.3	1.3	1.7	7.0	5.7	4.3	24.3
Prefar	4.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI	0.3	0.7	5.7	11.0	3.7	4.0	25.3
Devrinol	1.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI	0.3	1.0	4.0	10.3	5.7	2.3	23.7
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI	0	1.7	5.7	8.0	3.3	3.3	22.0
Prefar	4.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI	0	3.0	6.0	7.3	2.7	3.0	22.0
Devrinol	2.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Metham	75 gpa	3/30	PPI	0.2	1.5	5.9	8.0	4.3	3.9	23.8
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
STAT. NOTATION @5% LSD				NS	NS	NS	NS	NS	NS	NS

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 7 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON STAND COUNT AND VIGOR OF WATERMELONS
02, 43, 425, 153, 10, 89-5

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Watermelon, Crimson Sweet
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then Furrow
PLOT SIZE: 1 bed 80" x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

HERBICIDES	Lb.ai/ Acre	Date Applied		STAND COUNT AND VIGOR EVALUATIONS, AVERAGE OF 4 REPS. # Melons/ Ft. of Bed	Melon Vigor*	# Brdlvs./ Ft. of Bed	# Grasses/ Ft. of Bed	Weeds Present**
Alanap	4.0	4/4	PPI	1.7	10.0	0.1	0	Ni
Prefar	4.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	4.0	4/4	PPI	1.7	10.0	0.1	0	Ni
Devrinol	1.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	6.0	4/4	PPI	1.5	10.0	1.4	0.3	B,I,Ni
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	6.0	4/4	PPI	2.0	10.0	0.8	0	I,Ni
Prefar	4.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	4.0	4/4	PPI	1.5	10.0	0.3	0	Ni
Devrinol	2.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Metham	75 gpa	3/30	PPI	1.3	10.0	0	0.1	B
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
STATISTICAL NOTATION LSD @5%				N.S.	N.S.	N.S.	N.S.	

*Vigor based on a 0 to 10 scale: 0 = no vigor, 10 = vigorously growing plants.
**Weeds Present: B = barnyardgrass, I = pigweed, Ni = nightshade

NOTE: PPI = preplant incorporated, PE = postemergence applied
Postemergence (PE) treatments were applied after the evaluations presented in this table.

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TABLE 8 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF WATERMELON
02, 43, 425, 153, 10, 89-5

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Watermelon, Crimson Sweet
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then Furrow
PLOT SIZE: 1 bed 80" x 40', Reps. 4
PLANTED: 4/5/89
HARVESTED: 7/12/89
HARVESTED AREA: 80" x 40'

HERBICIDES	Lb.ai/ Acre	Date Applied	WATERMELON HARVEST DATA, AVERAGE OF 4 REPLICATIONS # Marketable Melons/plot*	# Unmarketable Melons/Plot*	Total Melons/Plot
Alanap	4.0	4/4 PPI	22.0	9.7	31.7
Prefar	4.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	4.0	4/4 PPI	24.0	10.0	34.0
Devrinol	1.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	6.0	4/4 PPI	19.3	13.3	32.6
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	6.0	4/4 PPI	21.0	9.7	30.7
Prefar	4.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	4.0	4/4 PPI	20.7	6.7	27.4
Devrinol	2.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Metham	75 gpa	3/30 PPI	24.6	9.0	33.6
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
STATISTICAL NOTATION LSD @5%			N.S.	N.S.	N.S.

*Yield data were obtained by counting of melons in the plots. Those larger than 7" in diameter were designated as marketable and those smaller than 7" in diameter were designated as non-marketable.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 9 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON STAND COUNT AND VIGOR OF CRENSHAW MELONS
02, 43, 425, 153, 10, 89-4

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Crenshaw
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then Furrow
PLOT SIZE: 1 bed 80" x 40', Reps. 4
PLANTED: 4/5/89
EVALUATED: 4/28/89

HERBICIDES	Lb.ai/ Acre	Date Applied		STAND COUNT AND VIGOR EVALUATIONS, AVERAGE OF 4 REPS. # Melons/ Ft. of Bed	Melon Vigor*	# Brdlvs./ Ft. of Bed	# Grasses/ Ft. of Bed	Weeds Present**
Alanap	4.0	4/4	PPI	2.2	10.0	0.4	0	Ni
Prefar	4.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	4.0	4/4	PPI	1.8	10.0	0	0	---
Devrinol	1.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	6.0	4/4	PPI	2.4	10.0	1.3	0.6	B,I,Ni
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	6.0	4/4	PPI	1.8	10.0	0.5	0	I,Ni
Prefar	4.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Alanap	4.0	4/4	PPI	2.0	10.0	0	0	---
Devrinol	2.0	4/4						
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
Metham	75 gpa	3/30	PPI	2.3	9.7	0.1	0	Ni
Alanap	4.0	5/3	PE					
Treflan	0.5	5/3						
STATISTICAL NOTATION LSD @5%				N.S.	N.S.	N.S.	N.S.	

*Vigor based on a 0 to 10 scale: 0 = no vigor, 10 = vigorously growing plants.

**Weeds Present: B = barnyardgrass, I = pigweed, Ni = nightshade

NOTE: PPI = preplant incorporated, PE = postemergence applied
Postemergence (PE) treatments were applied after the evaluations presented in this table.

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TABLE 10 - EFFECT OF PREPLANT INCORPORATED HERBICIDES ON CUCUMBER YIELD
02, 43, 425, 153, 10, 89-6

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
PLANTED: 4/8/89
VARIETY: Calypso Hybrid
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89

IRRIGATION METHOD: Furrow
PLOT SIZE: 1 bed (80") X 40', Reps. 2
HARVESTED: See below
HARVESTED AREA: 80" x 40' plot

TREATMENT	Lbai/A	Date Appld.	CUCUMBER HARVEST DATA, lbs. PER PLOT 6/6	6/8	6/12	6/14	6/16	6/19	TOTAL
Alanap Prefar	4.0 4.0	4/4	21.2	1.2	11.9	2.2	2.6	7.0	45.1
Alanap Devrinol	4.0 1.0	4/4	12.4	1.3	4.4	2.9	2.6	10.6	34.2
Alanap	6.0	4/4	20.5	1.1	10.3	2.2	1.5	10.6	55.2
Alanap Prefar	6.0 4.0	4/4	16.0	1.4	8.8	2.4	1.3	8.8	38.7
Alanap Devrinol	4.0 2.0	4/4	10.8	0.6	4.4	1.3	1.8	6.6	25.5
Metham	75 gpa	3/30	22.1	1.2	10.8	1.8	2.5	8.0	46.4

TABLE 11 - EFFECT OF PREPLANT AND POSTEMERGENCE APPLIED HERBICIDES ON CUCURBIT STAND AND WEED CONTROL
02, 43, 425, 153, 10, 89-6/7/8

LOCATION: West Side Field Station, Fld. 35-41
SOIL TYPE: Panoche clay loam
PLANTED: 4/5/89
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

EVALUATED: 4/28/89

IRRIGATION METHOD: Furrow
PLOT SIZE: 1 bed (66") x 40', Reps. 2
VARIETIES: Cantaloupe - Shipper
Hybrid Cantaloupe - Top Score
Honeydew - Green Flesh
Crenshaw
Casaba - Golden Beauty
Watermelon - Crimson Sweet

		MELON COUNT AND WEED CONTROL EVALUATIONS/1 ft. OF BED								
HERBICIDE	Lbai/ Acre	# Hybrid Cantal.	# Shipper Cantal.	# Honey-dew	# Cren-shaw	# Casaba	# Water-melon	# Brdlf. Weeds	# Grasses	Weeds* Present
PREPLANT (4/4/89):										
Alanap Prefar	4.0 4.0	2.0	1.3	1.3	3.0	1.5	2.0	0.6	0.4	B,I,La,Ni
Alanap Devrinol	4.0 1.0	1.5	1.0	1.0	2.0	1.8	1.8	0.8	0.3	B,I,Ni
Alanap	6.0	1.8	1.8	1.0	1.8	2.0	2.0	0.8	1.1	B,I,La,Ni
Alanap Prefar	6.0 4.0	1.3	1.8	1.0	2.5	2.0	1.8	0.5	0	Ni
Alanap	4.0	1.3	2.0	1.5	2.3	1.5	1.5	0.1	1.0	B,Ni
PREPLANT (3/30/89):										
METHAM	50 gpa	1.3	2.2	1.0	1.9	1.5	1.7	0.4	0	I,La
METHAM	75 gpa	2.2	1.4	1.2	2.2	1.5	1.8	0	0	

POSTEMERGENCE:
All Plots treated 5/3/89 with:

Alanap 4.0
Treflan 0.5
(Applied broadcast and incorporated with rolling cultivators)

*WEEDS PRESENT: B = barnyardgrass, I = pigweed, La = lambsquarter, Ni = nightshade

NOTE: Postemergence treatments were applied after the evaluations presented in this table.

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TABLE 12 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF CANTALOUPE
02, 43, 425, 153, 10, 89-8

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Cantaloupe, Shipper
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: 7/26/89
HARVESTED AREA: 66" X 15'

			NUMBER OF MELONS FROM 66" x 15" AREA IN CENTER OF PLOT*										
	Lb.ai/	Date	Larger Than 27's		27's		36's		45's		Smaller Than 45's		Total
HERBICIDES	Acre	Appld.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Melons
Alanap	4.0	4/4 PPI											
Prefar	4.0	4/4 PPI	3	2	3	0	7	2	4	2	1	4	28
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	1.0	4/4 PPI	7	1	7	4	6	2	3	2	1	2	35
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Alanap	4.0	5/3 PE	5	3	5	2	8	3	7	3	3	1	40
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Prefar	4.0	4/4 PPI	8	0	11	1	9	1	2	3	0	3	38
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	2.0	4/4 PPI	10	0	14	3	4	0	6	2	2	0	35
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Metham	50 gpa	3/30 PPI											
Alanap	4.0	5/3 PE	8	0	11	1	7	1	5	2	1	2	38
Treflan	0.5	5/3 PE											
Metham	75 gpa	3/30 PPI											
Alanap	4.0	5/3 PE	10	2	9	3	8	2	5	2	1	2	44
Treflan	0.5	5/3 PE											

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 13 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF HYBRID CANTALOUPES
02, 43, 425, 153, 10, 89-7

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Hybrid, Top Score
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: 7/26/89
HARVESTED AREA: 66" X 15'

			NUMBER OF MELONS FROM 66" x 15" AREA IN CENTER OF PLOT*										
	Lb.ai/	Date	Larger Than 27's		27's		36's		45's		Smaller Than 45's		Total
HERBICIDES	Acre	Appld.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Ripe	Grn.	Melons
Alanap	4.0	4/4 PPI											
Prefar	4.0	4/4 PPI	4	0	11	0	15	0	2	2	3	1	38
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	1.0	4/4 PPI	9	0	13	0	12	1	4	0	0	1	40
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Alanap	4.0	5/3 PE	12	0	15	2	1	2	1	1	1	2	37
Treflan	0.5	5/3 PE											
Alanap	6.0	4/4 PPI											
Prefar	4.0	4/4 PPI	7	0	15	2	6	3	1	4	1	1	40
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Alanap	4.0	4/4 PPI											
Devrinol	2.0	4/4 PPI	9	1	8	2	2	0	1	0	0	1	24
Alanap	4.0	5/3 PE											
Treflan	0.5	5/3 PE											
Metham	50 gpa	3/30 PPI											
Alanap	4.0	5/3 PE	13	1	11	1	7	1	2	2	1	1	40
Treflan	0.5	5/3 PE											
Metham	75 gpa	3/30 PPI											
Alanap	4.0	5/3 PE	10	1	14	1	11	2	3	2	3	1	48
Treflan	0.5	5/3 PE											

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 14 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF HONEYDEW MELONS
02, 43, 425, 153, 10, 89-9

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Honeydew, Green Flesh
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps 2
PLANTED: 4/8/89
HARVESTED: 7/31/89
HARVESTED AREA: 66" X 15'

HERBICIDES	Lb.ai/ Acre	Date Appld.		NUMBER OF MELONS FROM 66" x 15" AREA IN CENTER OF PLOT* Larger Than 4's.	4's	5's	6's	8's	Smaller Than 8's	Total Melons
Alanap	4.0	4/4	PPI							
Prefar	4.0	4/4		0	3	4	11	7	2	27
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI							
Devrinol	1.0	4/4		0	3	5	10	6	3	27
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI							
Alanap	4.0	5/3	PE	0	2	2	6	7	4	21
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI							
Prefar	4.0	4/4		0	0	4	10	9	1	24
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI							
Devrinol	2.0	4/4		0	2	5	12	5	2	26
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Metham	50 gpa	3/30	PPI							
Alanap	4.0	5/3	PE	1	1	8	8	2	2	22
Treflan	0.5	5/3								
Metham	75 gpa	3/30	PPI							
Alanap	4.0	5/3	PE	1	2	8	10	5	4	30
Treflan	0.5	5/3								

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

TABLE 15 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF CASABA MELONS
02, 43, 425, 153, 10, 89-11

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Casaba, Golden Beauty
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: 8/4/89
HARVESTED AREA: 66" X 15'

HERBICIDES	Lb.ai/ Acre	Date Appld.		NUMBER OF MELONS FROM 66" x 15" AREA IN CENTER OF PLOT* Larger Than 4's.	4's	5's	6's	8's	Smaller Than 8's	Total Melons
Alanap	4.0	4/4	PPI	0	0	3	11	10	8	32
Prefar	4.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI	0	0	5	11	6	4	26
Devrinol	1.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI	0	1	4	10	8	2	25
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	6.0	4/4	PPI	0	0	2	8	10	3	23
Prefar	4.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Alanap	4.0	4/4	PPI	0	1	4	11	3	3	22
Devrinol	2.0	4/4								
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Metham	50 gpa	3/30	PPI	0	1	4	10	6	3	24
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								
Metham	75 gpa	3/30	PPI	0	0	3	10	5	4	22
Alanap	4.0	5/3	PE							
Treflan	0.5	5/3								

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 16 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF CRENSHAW MELONS
02, 43, 425, 153, 10, 89-10

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Crenshaw
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: 8/4/89
HARVESTED AREA: 66" X 15'

HERBICIDES	Lb.ai/ Acre	Date Appld.	NUMBER OF MELONS FROM 66" x 15" AREA IN CENTER OF PLOT* Larger Than 4's.	4's	5's	6's	8's	Smaller Than 8's	Total Melons
Alanap	4.0	4/4 PPI							
Prefar	4.0	4/4	0	0	2	6	4	2	14
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3							
Alanap	4.0	4/4 PPI							
Devrinol	1.0	4/4	0	0	3	5	5	2	15
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3							
Alanap	6.0	4/4 PPI							
Alanap	4.0	5/3 PE	0	1	1	7	6	2	17
Treflan	0.5	5/3							
Alanap	6.0	4/4 PPI							
Prefar	4.0	4/4	0	2	2	7	2	2	15
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3							
Alanap	4.0	4/4 PPI							
Devrinol	2.0	4/4	0	0	5	4	2	3	14
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3							
Metham	50 gpa	3/30 PPI							
Alanap	4.0	5/3 PE	0	1	6	6	4	1	18
Treflan	0.5	5/3							
Metham	75 gpa	3/30 PPI							
Alanap	4.0	5/3 PE	0	1	4	7	2	3	17
Treflan	0.5	5/3							

*All melons were harvested by hand, graded and sized.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 17 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF WATERMELON
02, 43, 425, 153, 10, 89-12

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Watermelon, Crimson Sweet
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then Furrow
PLOT SIZE: 1 bed 66" x 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: 7/26/89
HARVESTED AREA: 66" x 40'

HERBICIDES	Lb.ai/ Acre	Date Applied	WATERMELON HARVEST DATA, AVERAGE OF 2 REPLICATIONS # Marketable Melons/plot*	# Unmarketable Melons/Plot*	Total Melons/Plot
Alanap	4.0	4/4 PPI	28	30	58
Prefar	4.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	4.0	4/4 PPI	14	8	22
Devrinol	1.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	6.0	4/4 PPI	8	11	19
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	6.0	4/4 PPI	15	18	33
Prefar	4.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Alanap	4.0	4/4 PPI	21	6	27
Devrinol	2.0	4/4			
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Metham	75 gpa	3/30 PPI	18	9	27
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			
Metham	50 gpa	3/30 PPI	23	10	33
Alanap	4.0	5/3 PE			
Treflan	0.5	5/3			

*Yield data were obtained by counting of melons in the plots. Those larger than 7" in diameter were designated as marketable and those smaller than 7" in diameter were designated as non-marketable.

NOTE: PPI = preplant incorporated, PE = postemergence applied

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TABLE 18 - EFFECT OF PREPLANT INCORPORATED AND POSTEMERGENCE APPLIED HERBICIDES ON YIELD OF CUCUMBERS
02, 43, 425, 153, 10, 89-13

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETY: Cucumber, Calypso Hybrid
HERBICIDES APPLIED: Metham, 3/30/89
Preplant, 4/4/89
Postemergence, 5/3/89

IRRIGATION: Sprinkler 4/10, then furrow
PLOT SIZE: 1 bed 66" X 40', Reps. 2
PLANTED: 4/8/89
HARVESTED: See below
HARVESTED AREA: 66" X 40'

HERBICIDES	Lb.ai/ Acre	Date Applied	POUNDS OF CUCUMBER HARVESTED FROM ENTIRE PLOT 6/7	6/9	6/12	6/14	6/16	6/19	Total Pounds
Alanap	4.0	4/4 PPI							
Prefar	4.0	4/4 PPI	13.2	6.6	2.4	5.5	12.8	12.8	53.3
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3 PE							
Alanap	4.0	4/4 PPI							
Devrinol	1.0	4/4 PPI	7.5	3.5	2.6	4.6	2.2	9.5	29.9
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3 PE							
Alanap	6.0	4/4 PPI							
Alanap	4.0	5/3 PE	20.9	2.2	3.5	5.7	2.9	10.1	45.3
Treflan	0.5	5/3 PE							
Alanap	6.0	4/4 PPI							
Prefar	4.0	4/4 PPI	12.0	4.42	4.4	5.9	10.6	10.6	47.9
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3 PE							
Alanap	4.0	4/4 PPI							
Devrinol	2.0	4/4 PPI	20.6	4.6	4.0	4.4	2.2	9.5	45.3
Alanap	4.0	5/3 PE							
Treflan	0.5	5/3 PE							
Metham	50 gpa	3/30 PPI							
Alanap	4.0	5/3 PE	12.4	5.1	6.5	3.1	3.4	8.4	38.9
Treflan	0.5	5/3 PE							
Metham	75 gpa	3/30 PPI							
Alanap	4.0	5/3 PE	10.4	1.4	3.1	3.9	2.8	9.9	31.5
Treflan	0.5	5/3 PE							

NOTE: PPI = preplant incorporated, PE = postemergence applied

HERBICIDES EVALUATED FOR WEED CONTROL IN CUCURBITS IN FRESNO COUNTY

The following herbicides were evaluated in applied research trials conducted in Fresno County. In the preplant incorporated trials (PpIn), the herbicides were thoroughly mixed within the surface 2 to 2-1/2 inches of soil with power-driven rotary tillers. The postemergence applied herbicides (PoEm) were incorporated with sectioned rolling cultivators. Nearly all of the trials were conducted in Panoche clay loam and/or Panoche loam soils having 1 percent or less organic matter content. Numerous varieties of cucurbits were used in the evaluation; however, cantaloupes (PMR-45) and honeydew melons (Greenflesh) were included in all trials.

Trade or Code Name	Common Name	Application Method 1/	Cucurbit Selectivity
AC-92786	---	PpIn	Fair
AC-78126	---	PpIn	Good
Alanap	naptalam	PpIn, PoEm	Good
Amex	butralin	PpIn	Good
Antor	diethatyl	PpIn	Fair
Assure	---	PoEm	Fair
Balan	benefin	PpIn	Marginal
Banvel	dicamba	PrPl	Poor
Buban	bulab-37	PpIn	Good
Cinch	cinmethylin	PpIn	Marginal
Command	dimethazone	PpIn	Poor
DD	dichloropropane+ dichloropropene	PrPl	Good
Dacthal	chlorthal	PpIn	Poor
		PoEm	Good
Destun	perfluidone	PpIn	Poor
Devrinol	napropamide	PpIn, PoEm	Good to Fair
Dual	metolachlor	PpIn, PoEm	Poor
Enide	diphenamid	PpIn	Poor
Fusilade	fluazifop	PoEm	Good
Glean	chlorsulfuron	PrPl	Poor
Gromaxone	paraquat	PrPl	Good
H-26905	---	PpIn	Poor

1/ - Evaluation Method: PrPl - prior to planting
PpIn - preplant incorporated
PoEm - postemergence

HERBICIDES EVALUATED FOR WEED CONTROL IN CUCURBITS IN FRESNO COUNTY

(Continued from reverse side)

Trade or Code Name	Common Name	Application Method 1/	Cucurbit Selectivity
Kerb	pronamide	PpIn	Poor
Lasso	alachlor	PpIn, PoEm	Poor
NTN-6867	---	PpIn	Fair
OCS-21693	---	PpIn	Marginal
Paarlan	isopropalin	PpIn	Poor
Paraquat	paraquat	PrPl	Good
Planavin	nitralin	PpIn	Poor
Poast	sethoxydim	PpIn	Good
PPG-603	---	PpIn	Poor
Prefar	bensulide	PpIn	Good
R-1856	---	PpIn	Good
R-23758	---	PpIn	Fair
Roundup	glyphosate	PrPl	Good
Trophy (SC-1084)	poppenate-methyl	PoEm	Good
Select	clethodim	PoEm	Fair
Selectone	clopropoxydim	PoEm	Good
Sonolan	ethalfluralin	PpIn	Poor
		PoEm	Good
Tackle	acifluorfen	PpIn, PoEm	Poor
Telone	dichloropropene	PrPl	Good
Touchdown	sulfosate	PrPl	Good
Treflan	trifluralin	PpIn	Poor
		PoEm	Good
Vapam	metham	PrPl	Good
Vegadex	sulfallate	PpIn	Fair
Verdict	haloxyfop-methyl	PoEm	Fair
Whip	fenoxaprop-ethyl	PoEm	Fair

1/ - Evaluation Method:
PrPl - prior to planting
PpIn - preplant incorporated
PoEm - postemergence

HERBICIDE PERSISTENCE AND PLANT-BACK STUDIES

Herbicides used in crop production have different residual properties. Some dissipate from the soil or degrade fairly rapidly, others may remain in the soil for a longer period of time. Small quantities of herbicides remaining in the soil, beyond the harvest of the crop in which they were used, may adversely affect the growth of certain crops planted sequentially in the same field. Therefore, before an herbicide is used in a crop it is essential to know its residual properties and develop information regarding safe cropping sequences. This is especially important in the Central San Joaquin Valley where a large number of different crops can be grown in rotation.

An ideal selective herbicide would be one that would effectively control all weeds without adversely affecting the growth of the crop and disappear from the soil at harvest. However, such "ideal herbicide" is not available and it is unlikely that it will be discovered in the near future.

In applied research trials conducted at the West Side Field Station and the Kearney Field Station, the residual properties of nearly all herbicides used in California were studied and safe cropping sequences were determined. The information developed in these studies is incorporated in the directions printed on the labels of herbicides.

The purpose of these studies was not to determine minute quantities (parts per million or billion) of herbicides in the soil. The primary objective was to learn how rapidly the herbicides dissipate from the soil to a level where they will not adversely affect the germination and growth of crops. All studies were replicated, bioassay field trials. The evaluations consisted of stand counts and ratings of vigor and any evidence of phytotoxicity.

1989 Studies

Four herbicides, at various rates, were applied on Panoche clay loam soil with less than 1 percent organic matter content. The individual plots were 20 feet wide and 30 feet long with 5-foot buffers between plots. Each plot contained eight beds 30 inches wide.

The herbicides were applied with an experimental sprayer on May 1 using compressed air as a propellent. Within two hours following the application of the herbicides, they were incorporated into the soil with power-driven, rotary tillers to a depth of 2-1/2 to 3 inches. Three days later, May 4, eight different crops were planted on separate 30-inch beds in each plot and the trial area was furrow irrigated.

Stand counts, vigor ratings, and injury evaluations were made May 23. (This evaluation is not included in this progress report but it is available from the senior author.) Following evaluations, the crops were shredded and the beds were reworked with sectioned, rolling cultivators and reshaped with power-driven, rotary tillers. On June 28, eight different crops were seeded in each plot and the field was furrow irrigated.

The herbicides, rates of application, and the crops planted on June 28 are given in the following tables. Evaluations were made on July 17 and August 1 which are summarized in the tables following the narrative section. Stand counts were made in 4-foot by 6-inch areas in each plot. The values given in the tables are the average number of plants per foot of row. The vigor and injury evaluations are based on a 0 to 10 scale. As a vigor rating, 10 equals vigorously growing plants and 0 indicates dead plants. As an injury rating, 0 denotes no evidence of phytotoxicity and 10 means very severe injury or death. Two evaluations were made, approximately two weeks apart, to determine whether the growth of the plants may be adversely affected as their roots developed.

Following the evaluations, the plants were mowed and the beds reworked. Every effort was made to maintain the integrity of each plot. The trial area will be replanted with different crops in early November.

The evaluations made 2-1/2 months after the application of the herbicides and summarized in the tables can be outlined as follows:

... **Pursuit** (imazethapyr), applied at 0.094, 0.188 and 0.282 lbai/A (pounds of active ingredient per acre), was best tolerated by blackeye beans. The most susceptible crop to this herbicide was sugar beets. Cotton and wheat exhibited some tolerance at 0.094 lbai/A, the lowest rate applied.

... **KIH-8921** exhibited most selectivity on cotton, blackeye beans, and on wheat at the lower rates of 0.05 and 0.10 lbai/A. The most susceptible crops to KIH-8921 were sugar beets, broccoli, and tomatoes. At 0.4 lbai/A, the highest rate used, all crops with the exception of cotton and blackeyes were severely injured.

... **DPX-M6316-30**, applied at 0.03125 and 0.06250 lbai/A (1/2 and 1 oz.), had no adverse effect on the crops planted 59 days following its application and soil incorporation.

... **DPX-R9674-2**, applied at 0.03125 and 0.06250 lbai/A (1/2 and 1.0 oz.), had no adverse effect on the crops, with the exception of sugar beets, in the areas treated with the higher rate.

Concluding Remarks

It is important to emphasize that the degradation of herbicides in the soil, hence, their residual properties, are influenced by many factors, such as:

... The rate of their application.
... The time of application relative to the harvest of the crop.
... The frequency of irrigation and the amount of water applied.
... The chemical properties of the herbicide.
... The solubility, its adsorptive capacity, and its mode of degradation have significant influence on the persistance of herbicides.
... Climatic conditions such as the temperature of the soil and air can affect both biological and chemical degradation.

These are a few factors that can enhance or adversely affect the degradation of herbicides in the soil. Before an herbicide is used in a crop, it is essential to learn about its residual properties, will it in any way influence the rotation, or what effect it may have on the sequentially planted crop.

EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
HERBICIDES APPLIED: 5/1/89 PLANTED: 6/28/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 7/17/89

HERBICIDE	Lb.ai/ Acre	STAND COUNT - AVERAGE NUMBER OF PLANTS PER FOOT OF ROW							
		Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat
A Pursuit 2EC	0.094	3.1	2.4	0.3	3.2	3.8	1.8	2.6	7.3
B Pursuit 2EC	0.188	3.4	2.4	0	3.5	4.6	1.1	2.7	3.9
C Pursuit 2EC	0.282	3.8	1.3	0	2.6	3.4	1.1	2.9	5.5
D KIH-8921 60DF	0.05	2.2	2.7	1.0	2.9	4.3	1.4	0.6	8.1
E KIH-8921 60DF	0.10	2.1	2.2	0.4	2.4	4.6	1.7	2.8	7.9
F KIH-8921 60DF	0.20	1 6	1.4	0.4	1.9	4.9	1.1	3.3	6.7
G KIH-8921 60DF	0.40	0.9	0.5	0	1.3	4.1	0.8	2.9	3.9
H DPX-M6316-30 75WG	0.03125	3.1	2.6	3.8	2.6	3.9	2.8	3.4	6.3
J DPX-M6316-30 75WG	0.06250	3.9	3.8	3.6	2.8	3.4	2.9	2.7	7.1
K DPX-R9674-2	0.03125	4.0	3.5	3.3	2.7	4.5	3.4	2.9	7.9
L DPX-R9674-2	0.06250	3.4	4.4	3.4	2.8	4.6	2.6	2.3	7.6
M Untreated	-------	3.8	2.3	3.1	3.1	4.1	2.9	2.6	10.9

NOTE: Broadleaf weeds present: groundcherry, pigweed, lambsquarter, nightshade, purselane
Grasses present: barnyardgrass, junglerice

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EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
HERBICIDES APPLIED: 5/1/89 PLANTED: 6/28/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 7/17/89

		VIGOR*, BROADLEAF AND GRASS STAND COUNTS									
		VIGOR RATING - AVERAGE OF 4 REPLICATIONS								STAND COUNTS**	
HERBICIDE	Lb.ai/ Acre	Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat	# Brdlf. Weeds	# Grasses
A Pursuit 2EC	0.094	2.3	4.5	0.3	4.8	5.8	2.8	10.0	9.0	2.3	6.7
B Pursuit 2EC	0.188	1.5	1.8	0	2.3	2.5	1.0	10.0	3.5	0.9	5.0
C Pursuit 2EC	0.282	1.0	2.5	0	1.8	1.8	0.8	10.0	3.5	1.0	2.3
D KIH-8921 60DF	0.05	4.3	3.3	2.5	3.0	7.8	1.5	10.0	8.5	4.9	6.9
E KIH-8921 60DF	0.10	6.0	6.0	0.5	2.3	8.3	2.5	9.0	4.5	3.7	4.2
F KIH-8921 60DF	0.20	2.0	2.8	0.5	1.0	7.3	1.5	9.3	5.0	2.5	4.1
G KIH-8921 60DF	0.40	0.8	0.5	0	0.8	5.0	1.0	9.0	2.8	0.8	3.1
H DPX-M6316-30 75WG	0.03125	10.0	9.5	9.0	10.0	9.0	6.8	9.8	9.8	5.1	4.6
J DPX-M6316-30 75WG	0.06250	10.0	9.3	9.8	9.3	9.5	8.8	10.0	9.8	4.8	4.2
K DPX-R9674-2	0.03125	10.0	10.0	9.0	9.3	9.8	9.8	10.0	9.8	6.9	2.9
L DPX-R9674-2	0.06250	8.5	10.0	8.5	10.0	9.8	10.0	8.8	10.0	6.7	3.4
M Untreated	-------	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	7.5	4.2

*Vigor rating based on a scale of 0 to 10; 0 = dead plants, 10 = vigorously growing plants.

**Broadleaf weeds present: groundcherry, pigweed, lambsquarter, nightshade, purslane

Grasses present: barnyardgrass, junglerice

EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
HERBICIDES APPLIED: 5/1/89 PLANTED: 6/28/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 7/17/89

HERBICIDE	Lb.ai/ Acre	INJURY* EVALUATION - AVERAGE OF 4 REPLICATIONS/FT. OF BED							
		Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat
A Pursuit 2EC	0.094	6.8	3.0	9.8	1.5	1.0	2.5	0	0.3
B Pursuit 2EC	0.188	7.5	7.3	10.0	3.3	0	5.8	0	3.3
C Pursuit 2EC	0.282	8.5	6.0	10.0	4.3	0.8	5.3	0	6.0
D KIH-8921 60DF	0.05	4.0	3.8	5.8	1.3	1.0	4.8	0	0.8
E KIH-8921 60DF	0.10	4.0	2.3	7.5	2.0	0	2.5	0.3	1.0
F KIH-8921 60DF	0.20	7.3	6.3	9.5	3.0	0	3.8	0.5	2.3
G KIH-8921 60DF	0.40	9.0	9.5	10.0	5.8	0	6.5	0	6.5
H DPX-M6316-30 75WG	0.03125	0	0	0	0	0	0	0	0
J DPX-M6316-30 75WG	0.06250	0	0.5	0	0	0	0	0	0
K DPX-R9674-2	0.03125	0	0	0	0	0	0	0	0
L DPX-R9674-2	0.06250	0	0	0	0	0	0	0	0
M Untreated	-------	0	0	0	0	0	0	0	0

*Injury rating based on a scale of 0 to 10; 0 = no injury, 10 = severe injury.

NOTE: Broadleaf weeds present: pigweed, lambsquarter, London rocket, nightshade, purslane, puncturevine, sowthistle, shepherd's purse; grasses present: barnyardgrass, crabgrass

9632A

EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
HERBICIDES APPLIED: 5/1/89 PLANTED: 6/28/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 8/1/89

		STAND COUNT - AVERAGE NUMBER OF PLANTS PER FOOT OF ROW							
HERBICIDE	Lb.ai/ Acre	Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat
A Pursuit 2EC	0.094	3.9	0.9	0	2.1	3.5	1.5	3.0	6.4
B Pursuit 2EC	0.188	0.1	0	0	3.4	4.3	0	3.1	4.6
C Pursuit 2EC	0.282	2.9	0.4	0	3.5	5.1	0	3.1	9.5
D KIH-8921 60DF	0.05	3.8	2.9	0	1.5	4.4	0	3.0	6.9
E KIH-8921 60DF	0.10	1.5	0.6	0	1.4	3.6	0	3.9	7.1
F KIH-8921 60DF	0.20	0	0	0.3	0	4.1	0	4.1	3.8
G KIH-8921 60DF	0.40	0.3	0	0	0	4.6	0	3.5	3.4
H DPX-M6316-30 75WG	0.03125	3.8	2.3	2.6	3.3	7.0	4.7	3.4	6.8
J DPX-M6316-30 75WG	0.06250	5.0	2.1	2.1	3.6	4.0	3.3	4.3	7.6
K DPX-R9674-2	0.03125	3.5	1.6	2.8	2.8	4.0	2.9	3.6	8.9
L DPX-R9674-2	0.06250	3.4	2.1	1.5	2.8	3.6	1.5	3.4	8.3
M Untreated	-------	4.3	1.0	1.2	2.9	2.9	2.0	3.9	9.4

NOTE: Broadleaf weeds present: groundcherry, pigweed, lambsquarter, nightshade, purselane
Grasses present: barnyardgrass, junglerice

9632A

EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
PLANTED: 6/28/89
HERBICIDES APPLIED: 5/1/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 8/1/89

HERBICIDE	Lb.ai/ Acre	VIGOR RATING - AVERAGE OF 4 REPLICATIONS							
		Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat
A Pursuit 2EC	0.094	7.5	4.0	0	7.0	6.5	5.0	10.0	9.5
B Pursuit 2EC	0.188	0.5	0	0	1.0	1.0	0	10.0	4.0
C Pursuit 2EC	0.282	3.5	1.5	0	1.0	1.0	0	10.0	6.5
D KIH-8921 60DF	0.05	9.5	5.0	0	6.0	9.5	0	9.5	9.0
E KIH-8921 60DF	0.10	0	0	0.5	0	9.0	0	6.5	6.5
F KIH-8921 60DF	0.20	0.5	0	0	0	6.5	0	10.0	1.5
G KIH-8921 60DF	0.40	0.8	0.5	0	0.8	5.0	1.0	9.0	2.8
H DPX-M6316-30 75WG	0.03125	10.0	8.5	10.0	10.0	10.0	10.0	9.5	9.5
J DPX-M6316-30 75WG	0.06250	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
K DPX-R9674-2	0.03125	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
L DPX-R9674-2	0.06250	10.0	10.0	5.5	10.0	9.8	10.0	9.5	10.0
M Untreated	-------	10.0	4.5	7.5	10.0	10.0	10.0	7.0	10.0

*Vigor rating based on a scale of 0 to 10; 0 = dead plants, 10 = vigorously growing plants.

**Broadleaf weeds present: groundcherry, pigweed, lambsquarter, nightshade, purslane
Grasses present: barnyardgrass, junglerice

9632A

EVALUATION OF HERBICIDE RESIDUE AND PLANT BACK TRIAL - 1989

02, 425, 453, 10, 89-1

LOCATION: West Side Field Station
SOIL TYPE: Panoche clay loam
VARIETIES: Various (see below)
PLANTED: 6/28/89
HERBICIDES APPLIED: 5/1/89

METHOD OF APPLICATION: Preplant Incorporated
IRRIGATION METHOD: Furrow
PLOT SIZE: 20' (8, 30" beds) x 30', REPS. 4
EVALUATED: 8/1/89

HERBICIDE	Lb.ai/ Acre	INJURY RATING - AVERAGE OF 4 REPLICATIONS							
		Sorghum	Tomato	Sugar Beets	Melon	Cotton	Broccoli	Blackeye Beans	Wheat
A Pursuit 2EC	0.094	0.5	0.5	10.0	1.5	3.0	5.0	0	0
B Pursuit 2EC	0.188	9.5	0	10.0	8.5	2.5	10.0	0	5.0
C Pursuit 2EC	0.282	6.0	7.5	10.0	8.5	2.5	10.0	0	2.5
D KIH-8921 60DF	0.05	0	5.0	10.0	0	5	10.0	0	0
E KIH-8921 60DF	0.10	5.0	5.0	10.0	4.5	0	10.0	0	0.5
F KIH-8921 60DF	0.20	10.0	10.0	9.5	10.0	0	10.0	1.0	1.0
G KIH-8921 60DF	0.40	9.5	10.0	10.0	10.0	0	10.0	0	7.0
H DPX-M6316-30 75WG	0.03125	0	0	0	0	0	0	0	0.5
J DPX-M6316-30 75WG	0.06250	0	0	0	0	0	0	0	0
K DPX-R9674-2	0.03125	0	0	0	0	0	0	0	0
L DPX-R9674-2	0.06250	0	0	4.5	0	0	0	0	0
M Untreated	-------	0	3.0	0	0	0	0	0.5	0

*Injury rating based on a scale of 0 to 10; 0 = no injury, 10 = severe injury.

**Broadleaf weeds present: groundcherry, pigweed, lambsquarter, nightshade, purslane
Grasses present: barnyardgrass, junglerice

9632A

TOWARD MORE EFFECTIVE WEED CONTROL

Without knowledge of the weed infestation it isn't possible to intelligently plan an economical weed control program.

To help identify weeds, the University of California's "Growers Weed Identification Handbook" may be helpful. It contains colored photographs and descriptions of 231 commonly occurring weeds in different stages of their growth. The pictures in a sturdy, 3-ring binder, can be purchased from Agricultural and Natural Resources, 6701 San Pablo, Oakland, California 94608.

Being able to identify weeds is but the first step. Keeping records of their presence is essential to use selective herbicides intelligently. Cards, such as the one illustrated below, can be used to keep records of weed infestations. They are available from Cooperative Extension offices, from pest control advisors and distributors of herbicides.

WEED INFESTATION RECORD

FIELD LOCATION _____ CROP _____ HERBICIDE USED _____

DATE PLANTED _____ DATE NOTES TAKEN _____ PREVIOUS CROP _____

BROADLEAF ANNUALS	Anise	Atriplex	Bassia Five Hook	Black Bindweed	Bristly Oxtongue	Burweed	Carpetweed	Cat's Ear	Cheeseweed
Chickweed	Clover	Cocklebur	Corn Spurry	Cudweed	Dandelion	Dock	Dodder	Fat Hen	Fiddleneck
Filaree	Flaxleaved Fleabane	Ground-cherry	Groundsel	Hemlock	Henbit	Jimson Weed	Knotweeds	Lambsquarters	Lettuce Wild
London Rocket	Mare's Tail	Mayweed	Milk Thistle	Minerslettuce	Morning Glory	Mustard	Nettle	Nettleleaf Goosefoot	Nightshade
Nuttalls Monolepis	Phacelia	Pigweed	Pineapple Weed	Plantain	Puncture Vine	Purslane	Red Maids	Russian Thistle	Scarlet Pimpernel
Shepherd's Purse	Sow Thistle	Spiny Clotbur	Spurge	Sunflower, Common	Tarweed	Telegraph-plant	Toadflax	Turkey Mullein	Velvet Leaf
Venice Mallow	Veronica	Willow Herb	Yellow Starthistle						
GRASSES ANNUAL	Annual Bluegrass	Barley, Volunteer	Barnyard-grass	Bromegrass	Canarygrass	Cupgrass	Dallisgrass	Diffuse Lovegrass	Feather Finger-grass
Foxtails (Bristle-grass)	Jungle Rice	Orcutts Lovegrass	Rabbitfootgrass	Ripgut Brome	Ryegrass	Sandbur	Sprangletop	Wild Barley (Foxtails)	Wild Oats
Witchgrass									
PERENNIALS	Alkali Sida	Bermudagrass	BINDWEED (Morning Glory)	Cattail	Chickory	Heliotrope	Hoary Cress	Johnsongrass	Nutsedge, Purple
Nutsedge, Yellow	Russian Knapweed	Saltgrass	SILVERLEAF NIGHTSHADE (Horsenettle)	Swamp Smart-weed (Kelp)	Tolgoucha	Tule			

Farm and Home Advisors Office
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