PERFORMANCE OF SELECTED HERBICIDES in DATE PALM
IR-4 Project: IS00393

Date: 12/21

PROJECT TITLE, JUSTIFICATION AND OBJECTIVES:

Performance of Selected Herbicides in Date Palm. The purpose of this research is to collect weed control and crop safety data to support registrations of herbicides applied in date palm. Adherence to Good Laboratory Practices (GLPs) is not required for trials conducted under this research plan.

IR-4 PRODUCT PERFORMANCE RESEARCH COORDINATOR:

Consult with the Research Coordinator listed below regarding desired changes in this research plan prior to occurrence.

Roger B. Batts, IR-4 Project Headquarters, 6572-A Jaycross Rd., Fremont, NC 27830, (252) 281-1612, E-mail: rbbatts@ncsu.edu

TEST SITE, TEST SUBSTANCES AND STATISTICAL ANALYSIS:

Field trials will be conducted at appropriate sites to determine the performance of selected herbicides when applied in date palm. One trial of each herbicide type (residual or postemergence) will be conducted on newly-established dates (i.e. trees have been established for at least six months and are non-bearing). Evaluate the test materials listed below. Do not use old products for trial conducted under this research plan. If needed, the IR-4 Research Coordinator will arrange for fresh test substances to be delivered. If unsure, contact the IR-4 Research Coordinator for guidance.

Follow local agricultural practices for the production of date palm including fertilization, irrigation, if necessary and available, and other practices that ensure good crop production. Use a locally-grown, commercial variety of date palm. To help maintain the integrity of the herbicide placement, it is recommended that trials be placed in orchards utilizing drip or sprinkler irrigations systems, rather than those using flood irrigation.

Each test site will include at least three replicates of each treatment, arranged in an appropriate statistical design. The individual plots shall consist of two or more date palms and will be large enough to permit accurate application of the test substances in a manner that represents the major application technique that will be used commercially. Conduct appropriate statistical analysis to determine if significant differences exist between treatments. Statistical analysis from commonly used agricultural data programs, such as Agricultural Research Manager (ARM), is acceptable.

TREATMENTS AND TIMING: Use application equipment that will provide uniform application of the test substance and simulates the intended commercial application technique as specified below. To ensure accurate delivery, calibrate test application equipment prior to application of the test substance(s). **Each trial will be maintained for two seasons, with treatments applied to the same plots both years.**

Residual Herbicides (IS00393.22-CA01):

Trt#	Product(s)	Active ingredient	Rate of formulated product(s) / acre	Rate of active ingredient (lb ai / acre)	Application Placement & Timing	Spray Volume Range (GPA) *
01	Grower standard[1]	labeled a.i.	labeled rates	labeled rates	Registered placement and timing	Registered volumes
02	Chateau EZ	flumioxazin	12 oz	0.375	Banded to orchard floor and emerged weeds**	15-60
03	Chateau EZ	flumioxazin	24 oz	0.75	Banded to orchard floor and emerged weeds	15-60
04	Prowl H_2O	pendimethalin	4 qt	3.8	Banded to orchard floor and emerged weeds	≥ 10

Date: 12/21

05	Prowl H_2O	pendimethalin	8 qt	7.6	Banded to orchard floor and emerged weeds	≥ 10
06	Matrix SG	rimsulfuron	4 oz	0.063	Banded to orchard floor and emerged weeds	≥ 10
07	Matrix SG	rimsulfuron	8 oz	0.125	Banded to orchard floor and emerged weeds	≥ 10
08	Pindar GT	oxyfluorfen + penoxsulam	3 pt	1.47 + 0.03	Banded to orchard floor and emerged weeds	10-30
09	Pindar GT	oxyfluorfen + penoxsulam	6 pt	2.95 + 0.06	Banded to orchard floor and emerged weeds	10-30
10	Alion	indaziflam	3.5 fl. oz	0.045	Banded to orchard floor and emerged weeds	≥ 10
11	Alion	indaziflam	7.0 fl. oz	0.09	Banded to orchard floor and emerged weeds	≥ 10

[1]TRT01 plots will receive a locally used program of registered herbicide(s). Herbicide trade name(s), active ingredient(s), application rate(s), application date(s) and placement will be included in the final report.
*GPA=gallons per acre
** Using an unshielded sprayer, apply as a banded application along each side of the crop row, with a minimum swath width of 4' on each side. Do not allow spray solution to contact crop. Do not concentrate test substance in the treated area. The rate specified is for treated area. Document swath width of unshielded spray pattern in the final report.

Application Description: Make two banded applications of each treatment per year. The first application will be made prior to emergence of spring weeds and will receive ≥ 0.5" rainfall or irrigation after and within 7 days of application. The second application will be made 90 days after the first. For control of emerged weeds at this timing, a registered non-selective herbicide may be tank mixed with the herbicide treatments. For control of emerged weeds between seasons, repeated applications of a non-selective herbicide may be used. Refer to each product label for instructions on correct spray solution droplet size.

DATA COLLECTION:

Crop Injury: YES_X__ NO_____ OPTIONAL____
Crop injury data will be collected at 15, 45, and 90 days after each application. Specify the type of injury (stunting, stand loss, leaf burn, leaf cupping or twisting, chlorosis, etc.) and assess if this level of injury is commercially acceptable. Photo images of significant injury should be collected and included in the final report.

Weed Control: YES_X__ NO_____ OPTIONAL____
Weed control data will be recorded at 15, 45, and 90 days after each application. Specify the weed(s) and the method used to evaluate the level of control.

Crop yield: YES____ NO__X__ OPTIONAL____
Trial will be in newly-established date palms, so no yield data will be collected.

Postemergence Herbicides (IS00393.22-CA02):

Trt#	Product(s)	Active ingredient	Rate of formulated	Rate of active	Application Placement &	Spray Volume

PERFORMANCE OF SELECTED HERBICIDES in DATE PALM
IR-4 Project: IS00393

Date: 12/21

			product(s) / acre	ingredient (lb ai/acre)	Timing	Range (GPA) *
01	Grower standard[1]	labeled a.i.	labeled rates	labeled rates	Registered placement and timing	Registered GPA
02	Rely 280 + MSO + AMS	glufosinate	82 fl. oz	1.5	Banded to emerged weeds**	≥ 20
03	Rely 280 + MSO + AMS	glufosinate	164 fl. oz	3.0	Banded to emerged weeds	≥ 20
04	Embed Extra + NIS	2,4-D choline	1 pt	0.48	Banded to emerged weeds	≥ 10
05	Embed Extra + NIS	2,4-D choline	2 pt	0.95	Banded to emerged weeds	≥ 10
06	Rinskor + MSO	florpyrauxifen	21 fl. oz	0.035	Banded to emerged weeds	≥ 10
07	Rinskor + MSO	florpyrauxifen	42 fl oz	0.07	Banded to emerged weeds	≥ 10
08	Treevix WDG + MSO + AMS	saflufenacil	1 oz	0.044	Banded to emerged weeds	≥ 10
09	Treevix WDG + MSO + AMS	saflufenacil	2 oz	0.088	Banded to emerged weeds	≥ 10

[1]TRT01 plots will receive a locally used program of registered herbicide(s). Herbicide trade name(s), active ingredient(s), application rate(s), application date(s) and placement will be included in the final report.

*GPA=gallons per acre

** Using an unshielded sprayer, apply as a banded application along each side of the crop row, with a minimum swath width of 4' on each side. Do not allow spray solution to contact crop. Do not concentrate test substance in the treated area. The rate specified is for treated area. Document swath width of unshielded spray pattern in the final report.

A labeled residual herbicide application will be made to the entire trial prior to each season of the trial. It should be made prior to emergence of spring weeds and will receive ≥ 0.5" rainfall or irrigation after and within 7 days of application.

Application Description: Make multiple banded applications of each treatment per year. The first application will be made to emerged spring weeds that are less than 6" tall. Refer to each product label for instructions on correct spray solution droplet size.

TRT02 and TRT03: Make three applications each year, approximately 28 days apart. Glufosinate treatments will include a methylated seed oil (MSO) adjuvant containing at least sixty (60) percent methylated seed oil at a rate of 1% v/v and ammonium sulfate (AMS) at 8-17 lb/100 gallons of spray solution.

TRT04 and TRT05: Make three applications each year, approximately 75 days apart. Each 2,4-D treatment will include a labeled rate of a nonionic surfactant (NIS). 2,4-D will not control emerged grass weeds. If necessary, application of a postemergence graminicide is allowed in these plots, as long as the application does not interfere with the TRT04 and TRT05 evaluations. The additional application(s) will be documented in the final report.

TRT06 and TRT07: Make three applications each year, approximately 28 days apart. Florpyrauxifen treatments must be applied using nozzles that generate coarse or coarser nozzle spray droplets. Each florpyrauxifen treatment will include a labeled rate of a methylated seed soil. Florpyrauxifen will not control emerged grass weeds. If necessary, application of a postemergence graminicide is allowed in these plots, as long as the application does not interfere with the TRT06 and TRT07 evaluations. The additional application(s) will be documented in the final report.

PERFORMANCE OF SELECTED HERBICIDES in DATE PALM
IR-4 Project: IS00393

Date: 12/21

TRT08 and TRT09: Make three applications each year, approximately 28 days apart. Saflufenacil treatments must include an MSO adjuvant containing at least sixty (60) percent methylated seed oil at a rate of 1% v/v and ammonium sulfate (AMS) at 8-17 lb/100 gallons of spray solution.

For control of emerged weeds between seasons, repeated applications of a non-selective herbicide may be used. Refer to each product label for instructions on correct spray solution droplet size.

DATA COLLECTION:

Crop Injury: YES_X__ NO_____ OPTIONAL____
Crop injury data will be collected at 7, 14, and 28 days after each application. Specify the type of injury (stunting, stand loss, leaf burn, leaf cupping or twisting, chlorosis, etc.) and assess if this level of injury is commercially acceptable. Photo images of significant injury should be collected and included in the final report.

Weed Control: YES_X__ NO_____ OPTIONAL____
Weed control data will be recorded at 7, 14, and 28 days after each application. Specify the weed(s) and the method used to evaluate the level of control.

Crop yield: YES____ NO__X__ OPTIONAL____
Trial will be in newly-established date palms, so no yield data will be collected.

FINAL REPORT:

At trial completion, please submit a final report to the Research Coordinator and the appropriate ARS/Regional Field Coordinator listed below within 60 days of last data collection. This shall include but not be limited to:

- Data requirements listed above
- Test site and application information; including soil characteristics, crop maintenance pesticides and cultural practices, description of the application equipment, environmental conditions at applications(s), meteorological and irrigation records, and other pertinent information, such as photos of significant crop injury.

The final report will also include a thorough narrative that analyzes the results and evaluates the potential of the tested products for use in the tested crop(s). The final report may be in paper or electronic format.

TRIAL SITE INFORMATION

Researcher	Field ID NO.	RFC
Peggy Mauk, University of California, Riverside, 1060 Martin Luther King Blvd, Riverside, CA 92507; 951-827-4274; cell: 951-236-2059; e-mail: Peggy.Mauk@ucr.edu **(Residual Herbicides)**	IS00393.22-CA01	WSR
Peggy Mauk, University of California, Riverside, 1060 Martin Luther King Blvd, Riverside, CA 92507; 951-827-4274; cell: 951-236-2059; e-mail: Peggy.Mauk@ucr.edu **(Postemergence Herbicides)**	IS00393.22-CA02	WSR

RFC = Regional/ARS Field Coordinator
Location:
WSR: Dr Michael Horak, Regional Field Coordinator, Western Region IR-4 Project, 4218 Meyer Hall, University of California-Davis, Davis, CA 95616; (530) 752-7634; Cell# 530-219-8466; e-mail: mjhorak@ucdavis.edu

Roger B Batts
Signature of IR-4 Product Performance Research Coordinator
Roger B. Batts

12-15-21
Date