

COOPERATIVE EXTENSION WORK
UNIVERSITY OF CALIFORNIA
College of Agriculture
THE UNITED STATES DEPARTMENT OF AGRICULTURE
States Relations Service
Cooperating with
THE BOARD OF SUPERVISORS OF SAN DIEGO COUNTY, CALIFORNIA

- I. NAME OF PROJECT: Tomato Disease Control
- II. LOCATION: San Diego County
- III. DATE EFFECTIVE: April 15, 1929
- IV. OBJECT: To increase yield of quality fruit and profit per acre by decreasing losses due to disease (especially late blight) in the field, in transit and at the market by increasing the farmers information with regard to tomato diseases prevalent in the county and methods of controlling them.
- V. GOALS FOR 1929:
 - A. To reach 100% of the growers, shippers, dealers in materials and equipment, and local representatives of transportation companies with information on diseases affecting tomatoes and approved methods of control.
 - B. To achieve effective application of control measures on the greatest number of farms possible.
 - C. To demonstrate relative effectiveness of methods of control of late blight (comparing dusts and liquid sprays) by means of:
 1. One test demonstration plot in the Tia Juanna Valley.
 2. A field meeting at test plot if results justify.
- VI. FACTORS DETERMINING SELECTION OF THE PROJECT AND HISTORY: The tomato crop means approximately one million dollars annual income to San Diego County growers. At the present time two diseases, late blight and Fusarium Wilt, threaten profits from this crop.

Late Blight

In 1927 and 1928 late blight was very destructive, in many instances decreasing yields sufficiently to eliminate profits. Moreover this disease caused heavy losses in transit and at the market due to fruit rot.

The destructiveness of late blight in any year is apparently dependent on weather conditions. The disease is favored by cool humid weather in October, November and December. Under San Diego County climatic conditions the fungus probably lives over in the soil. In spite of uncertainty as to time and seriousness of attack (due to weather relationships)

leading growers at present feel insurance in form of preventive measures is desirable.

In 1928, following a disastrous season in 1927 the Assistant Farm Advisor issued information concerning the control of late blight by application of fungicides. Shippers report that a high percentage of growers used either dust or spray. Results were contradictory, some men reporting profitable control with dust and others with spray, while still others failed to submit evidence of benefit from the use of either.

Interviews with leading growers and shippers (April 1929) indicate that:

1. There is need for more information on the part of farmers with regard to the nature of the disease and theory of control.
2. Due to small acreages planted by individual growers there is a problem of securing efficient equipment for effective application at a cost within their reach.
3. As an aid to solving this equipment problem data is needed with regard to the effectiveness of small hand dusters and sprayers.
4. Large shippers might profitably purchase power equipment and make it available for use by small growers with whom they had contracts.

While there is a dearth of printed experimental evidence on control of tomato late blight, in California bulletin 203 (1909) it is stated that demonstrations by the Whittier laboratory showed the possibility of entirely controlling this disease by means of spraying with Bordeaux mixture. At the U. S. D. A. Experiment Station at Chula Vista a high percentage of control was obtained in 1927 with Bordeaux mixture.

Fusarium Wilt

In the interior sections of the county Fusarium Wilt is a threat to the industry. Realizing this, growers in these sections have for the most part adopted Marglobe which has a high degree of resistance. There are some complaints with regard to yields from this variety under local conditions and it may be that in another year test plots of resistant varieties can advantageously be placed in the county. For the present, however, it seems best to confine active disease work to late blight.

VII. PROCEDURE:

A. Procedure - Subject Matters:

1. Available material

a. For reference

- (1) California Agricultural Experiment Station Bulletins 175 (1906), 203 (1909), 239 (1913)
- (2) Spraying, Dusting and Fumigating of Plants (Mason) 1928

a. Extension Service leaflet or office mimeographed circular on late blight control.

- b. Press notices on disease and insect control for release in local papers be
- c. If test plot results favorable, a mimeographed statement will be prepared for use at field meeting.
- d. Questionnaire card on spraying and dusting for distribution at end of season.
- e. 30"x40" hand colored chart on tomato late blight to be prepared and loaned to county by U. S. D. A.

1. Distribute literature on late blight control.

2. Conduct one result test demonstration on spraying and dusting.

a. 2 pre-season meetings (Jones as speaker on tomato production problems)

- b. 2 field meetings for method demonstrations of spraying and dusting.

c. Field meeting at test demonstration plot if results justify.

4. Prepare and issue short news notes on tomato disease control. pre-season meetings. (Mention

5. Prepare summary of results.

C. Procedure - Division of Responsibility

1. X will prepare Extension circular on late blight control for use here and in other sections of state concerned. He will also aid Assistant Farm Advisor in preparation of local mimeographed office circular letters, and news articles. He will visit county at least three times during season for planning work, holding meetings, and working on test plots.

*X, a man assigned to work by research department of College of Agriculture.

2. The Assistant Farm Advisor will secure cooperator, supervise planting of plots, application of fungicides and record taking. He will prepare office circular letters, and news notes, will arrange for meetings, and at close of season will summarize results of work in the county.
 3. I. C. Jagger, U. S. D. A. will assist in planning test demonstrations and obtaining information regarding first appearance of disease.
 4. The local cooperator will conduct test demonstration plots according to minimum requirements and will keep necessary records of costs and yields.
- D. Procedure - Measurement of Results**
1. Units of measurement will be
 - a. On test plot.
 - (1) Lugs of marketable tomatoes per unit area sprayed and dusted plots
 - (2) Cost of operations
 - b. Number of farmers spraying or dusting
 - c. Acres affected
 - d. Results on individual farms
 2. Methods of securing results
 - a. Harvest test plots
 - b. Questionnaire to growers
- E. Procedure - Calendar for 1929**

WHEN	WHAT	WHO
April 15	Write shippers for list of tomato growers in county	A. F. A.
April 24	Field meeting at test plots (if desirable)	A. F. A.
December 30	Make up complete mailing list of growers, shippers, equipment and material dealers, and railroad representatives	A. F. A.
April 26	Questionnaire to growers	A. F. A.
January 15	Mail announcement of pre-season meetings. (Mention late blight)	A. F. A.
April 27	Mail press notice of meetings to papers. (Mention late blight)	A. F. A.
May 3	Pre-season meeting. Vista, Jones speaks on tomato production problems	A. F. A. Jones
May 4	Pre-season meeting, Lemon Grove. Jones speaks on tomato production problems.	A. F. A. Jones
May 4	Press notice report. (Mention late blight)	A. F. A. Jones

WHEN	WHAT	WHO
June	Secure cooperator	A. F. A.
June	Conference to outline subject matter recommendations to growers	A. F. A. X Jagger
July	Supervise arrangement of test plots, selection of materials, equipment and schedule of application	A. F. A. X Jagger
August 1	Mail extension circulars on late blight to growers	A. F. A.
August 1	News note on late blight announcing circulars	A. F. A.
July - December	Supervise application of spray and dust on test plots	A. F. A. X
-----	Assist obtaining date first appearance late blight	X & Jagger
-----	Announcement of first appearance of late blight by letter to growers in territory concerned, urging thorough application of fungicides, and announcing method demonstrations	A. F. A.
-----	Two method demonstrations on spraying and dusting	A. F. A. & X
-----	Press notice telling of method demonstrations	A. F. A.
October to January	Supervise record taking on test plots	A. F. A. & X
November	Prepare statement for annual report	A. F. A.
-----	Announcement of field meeting at test plots (if desirable)	A. F. A.
-----	Field meeting at test plots (if desirable)	A. F. A. & X
-----	Press notice on results seen at field meeting	A. F. A.
December 30	Questionnaire to growers	A. F. A.
January 15	Prepare statistical report of market inspection records on California shipments	Meier, U. S. D. A.
January 20	Summarize results of project for crop year	A. F. A.

VIII. ADDITIONS will be submitted annually.

Signatures

R. H. Crocker

Director of Extension

COOPERATIVE EXTENSION WORK
UNIVERSITY OF CALIFORNIA
College of Agriculture

THE UNITED STATES DEPARTMENT OF AGRICULTURE

States Relations Service

Farm Advisor

Cooperating With

THE BOARD OF SUPERVISORS OF SAN DIEGO COUNTY, CALIFORNIA

I. NAME OF PROJECT Tomato Disease Control Assistant Farm Advisor

II. LOCATION San Diego County

III. DATE February 17, 1933

IV. STATE OF PROJECT No results were observed in 1932 owing to the fact that no blight had appeared in any check plots previous to the appearance of frost during the week of November 11th - 16th, 1932.

- V. WORK FOR 1933:
1. To reach 100% of the growers, shippers, dealers in materials and equipment, and local representative of transportation companies with information on diseases affecting tomatoes and correct methods of control.
 2. To achieve effective application of control measures on the greatest number of acres possible.
 3. To demonstrate relative effectiveness of methods of control of late blight (comparing dusts and liquid sprays) by means of:
 - a. One test demonstration plot in the Tia Juana Valley.
 - b. A field meeting at test plot if results justify.

- VI. PROCEDURE:
1. Procedure - Subject Matter:
None to be added
 2. Procedure - General Extension Methods:
 - a. Distribute literature on late blight control.
 - b. Conduct one result test demonstration on spraying and dusting
 - c. Growers' meetings
 1. 2 pre-season meetings
 2. 2 field meetings for method demonstrations of spraying and dusting
 3. Field meeting at test demonstration plot if results justify.

-7-

d. Prepare and issue short news notes on tomato.

COOPERATIVE EXTENSION WORK
UNIVERSITY OF CALIFORNIA

e. College of Agriculture

THE UNITED STATES DEPARTMENT OF AGRICULTURE

3. States Relations Service

Cooperating With

THE BOARD OF SUPERVISORS OF SAN DIEGO COUNTY, CALIFORNIA

- I. NAME OF PROJECT: Tomato Disease Control
- II. LOCATION: San Diego County
- III. DATE EFFECTIVE: February 12, 1930
- IV. STATUS OF PROJECT: No results were obtained in 1929 owing to the fact that no blight had appeared in the check plots previous to the appearance of frost during the week of November 11th - 16th, 1929.
- V. GOALS FOR 1930:
1. To reach 100% of the growers, shippers, dealers in materials and equipment, and local representative of transportation companies with information on diseases affecting tomatoes and approved methods of control.
 2. To achieve effective application of control measures on the greatest number of farms possible.
 3. To demonstrate relative effectiveness of methods of control of late blight (comparing dusts and liquid sprays) by means of:
 - a. One test demonstration plot in the Tia Juana Valley.
 - b. A field meeting at test plot if results justify.
- VI. PROCEDURE:
1. Procedure - Subject Matter:
None to be added
 2. Procedure - General Extension Methods:
 - a. Distribute literature on late blight control.
 - b. Conduct one result test demonstration on spraying and dusting
 - c. Growers' meetings
 1. 2 pre-season meetings
 2. 2 field meetings for method demonstrations of spraying and dusting.
 3. Field meeting at test demonstration plot if results justify.
- July - Supervise application of spray on test plots
- December - Assist obtaining
- Announcement of letter to growers in thorough application of fungicides, and announcing method demonstration
- Two method demonstrations on spraying and dusting
- Press notice telling of
- October - Supervise record taking
- January - Prepare statement for Annual Report
- November - Prepare statement for Annual Report

d. Prepare and issue short news notes on tomato disease control.

e. Prepare summary of results.

3. Procedure - Calendar for 1930

WHEN	WHAT	WHO
April	Write shippers for list of tomato growers in county	A. E. S.
April	Make up complete mailing list of growers, shippers, equipment and material dealers, and railroad representatives	A. E. S.
	Mail announcement of pre-season meetings.	A. E. S.
	Mail press notice of meetings to papers	A. E. S.
May	Pre-season meeting	A. E. S.
	Pre-season meeting	A. E. S.
	Press notice report	A. E. S.
June	Secure cooperator	A. E. S.
	Conference to outline subject matter recommendations to growers	A. E. S.
July	Supervise arrangement of test plots, selection of materials, equipment and schedule of application	A. E. S.
August	Mail extension circulars on late blight to growers	A. E. S.
	News note on late blight announcing circulars	A. E. S.
July - December	Supervise application of spray on test plots	A. E. S.
-----	Assist obtaining date first appearance late blight	A. E. S.
-----	Announcement of first appearance of late blight by letter to growers in territory concerned, urging thorough application of fungicides, and announcing method demonstrations	A. E. S.
-----	Two method demonstrations on spraying and dusting	A. E. S.
-----	Press notice telling of method demonstrations	A. E. S.
October - January	Supervise record taking on test plots	A. E. S.
November	Prepare statement for Annual Report	A. E. S.

Program Reports

Announcement of field meeting at test plots (if desirable)	A. E. S.
Field meeting at test plots (if desirable)	A. E. S.
Press notice on results seen at field meeting	A. E. S.
December Questionnaire to growers	A. E. S.
February Summarize results of project for crop year	A. E. S.

3-22-30

E. Roy B. Smith
Acting Extension Director

Feb. 13, 1930

James G. France
Farm Advisor

Feb. 13, 1930

G. F. Fine
Assistant Farm Advisor
(Itinerant)

ADVISOR PROJECT

Progress Report;

Date: January 1, 1938.

Project No.
State Leader 2718
County No. 198

Name of Project: Tomato Disease Control.

Rather extensive plantings of the Pritchard variety were made in the El Cajon and Spring Valley areas last year. This tomato is superior in wilt-resistance to any yet developed and resulted in favorable yields. More of this variety will be planted this year in these areas.

3-28-38

Date

Eric E. Eastman
Farm Advisor

File

- I. NAME OF PROJECT: Tomato Disease Control.
- II. DATE EFFECTIVE: January 1, 1938.
- III. STATUS OF PROJECT: In addition further trials with additional disease-resistant varieties are planned.
- IV. GOALS FOR 1938:
1. Check on increased quality and production resulting from use of Pritchard variety.
 2. Establish at least two check plot trials with four additional disease-resistant varieties.
- V. PROCEDURE:
1. Subject Matter.
Advocate use of Pritchard variety in areas similar to the El Cajon district.
 2. General Extension Methods.
Dissemination of information by contacts with growers.
 3. Calendar of Operations.

WHEN

WHAT

WHO

March - April

Establish two cooperative test plots

Farm Advisor

Monthly

1. Note diseases - kind, extent and effect.
2. Note effectiveness of varieties in resisting disease
3. Assist individuals in disease control through established procedure

Farm Advisor

Farm Advisor

Farm Advisor

December

Summarize and "publicize" results
Write 1939 addition and progress report

Farm Advisor

Date

Director of Extension

3-29-38

Date

E. E. Caldwell
Farm Advisor

FARM ADVISOR PROJECT

Progress Report:

Date: January 1, 1938

Project No.
State Leader 2718
County No. 105

Name of Project: Tomato Disease Control

One field trial, containing all the commonly grown varieties of tomatoes, was established on the Prevost Bros. home ranch, Bancroft Ave., Spring Valley. Seed was supplied by Dr. D. R. Porter, Truck Crop Division, University Farm, Davis. *Fusarium*, *verticillium*, and spotted wilt were present abundantly in this field, which has been devoted to tomato production for years. Specific yield data is not available, but the Pierson variety was outstanding in quality and productivity. The Riverside variety did not produce many fruits until the latter part of the season, when it promised to be productive. Practically all the other varieties either not do well, or collapsed and died. The Pierson acquired the disease, but produces in spite of the infection in the semi-interior or intermediate area of the county. Although producing heavily, of good sized fruit and shipping well, the Pierson tends towards a hard core, which should be bred out of the variety.

Dec 30, 1938
Date

E. E. Eastman
Farm Advisor

Farm Advisor Project:

Progress Report:

Date: December 1, 1937

Project Number

State Leader No. 2718

County No. 105

Name of Project: Tomato Disease Control

Work on this project has been confined to assistance in the field to individual producers, occasionally with the cooperation of the technical departments of the station and University.

Tomato acreage has extended rapidly but organized investigations on disease control, and community meetings on this subject have not been possible. Work on this project may advantageously be renewed.

12/16/37
Date

Eric E. Eastman
Farm Advisor

FARM ADVISOR PROJECT

Progress Report:

Date: January 1, 1940

Project No.
State Leader
County Nol

2718

109

Name of Project: Tomato Disease Control

The adoption of Pritchard variety by the commercial producers in the El Cajon and adjacent areas such as Lemon Grove where disease of soil and seed-borne origin were severe, has so greatly reduced the disease problem that but little grower interest, if any, existed during the year. Consequently the project was allowed to remain dormant. Cooperation in securing the adoption of this resistant variety accomplished the objective of this project.

As no variety can be expected to remain permanently immune to diseases, and other varieties are involved in total production, this project should remain dormant or inactive pending future requirements.

Feb. 21, 1940
Date

Eric E. Eastman
Farm Advisor