

VEGETARIAN

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Gentlemen:

By this time most of you have had your feet to the fire one way or another over the Food and Drug Administration activities AC (after cranberries). Many of you have asked about ways to remove pesticide residues from crops at harvest. We would like to use this issue to give a condensed report of some work done here in Florida by Dr. B. D. Thompson and Dr. C. H. Van Middlelem. This work was reported in the proceedings of the American Society for Horticultural Science. Vol. 65, 1955;

"The removal of toxaphene and parathion residues from tomatoes, green beans, celery and mustard with detergent washings."

The object of this work was to determine the feasibility of using certain detergents to remove typical insecticides from representative crops. Green beans, tomatoes, mustard greens and celery were used and were sprayed at weekly intervals with toxaphene at the rate of 2.5 pounds of technical per 100 gallons of water and parathion at the rate of 0.5 pounds per 100 gallons of water on all crops except celery. Each crop was harvested at a definite interval following four or five sprays and the harvested portion washed with the following:

- (A) 0.1 percent alkyl - oryl polyether alcohol (synthetic detergent).
- (B) 1.0 percent neutral soap.
- (C) Unsprayed vegetables washed in water
- (D) Sprayed vegetables washed in water
- (E) Sprayed vegetables not washed.

Solutions were kept at 70 to 75° F. and fresh solution was used for each group of samples. The washer consisted of a small tank and the water was recirculated, vegetables were passed over an endless wire mesh belt through a hood where four top and eight side full jet nozzles sprayed 15 gallons of water per minute at a pressure of 20 PSI. The mustard greens were immersed in the solutions in large laundry sinks and were forced to the bottom every two minutes and were rinsed by plunging them in three 10-gallon portions of water. Then the pesticide residues were extracted from the vegetables.

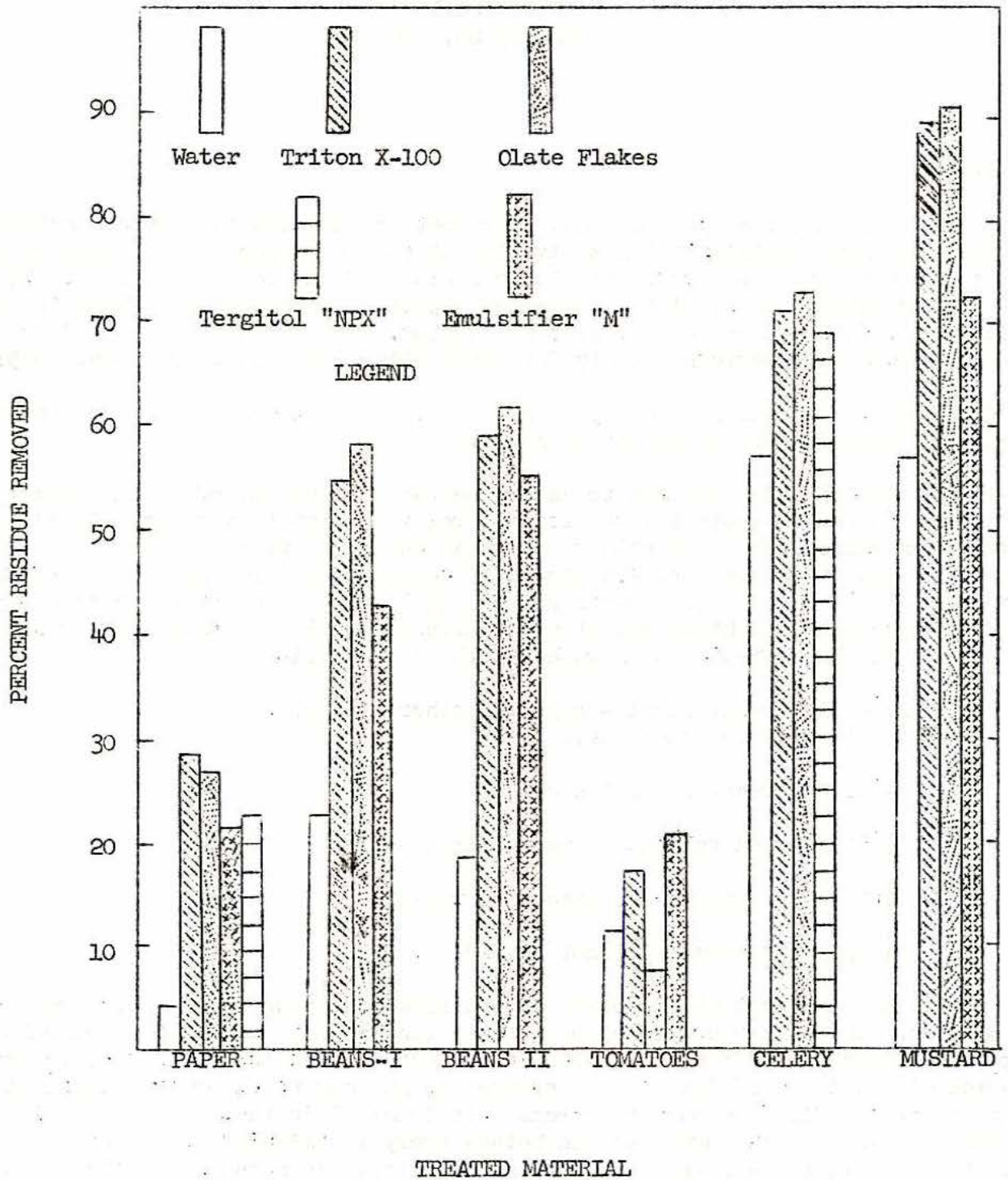


Fig. 1--The effect of detergent washing on the removal of surface residues of toxaphene from treated materials.

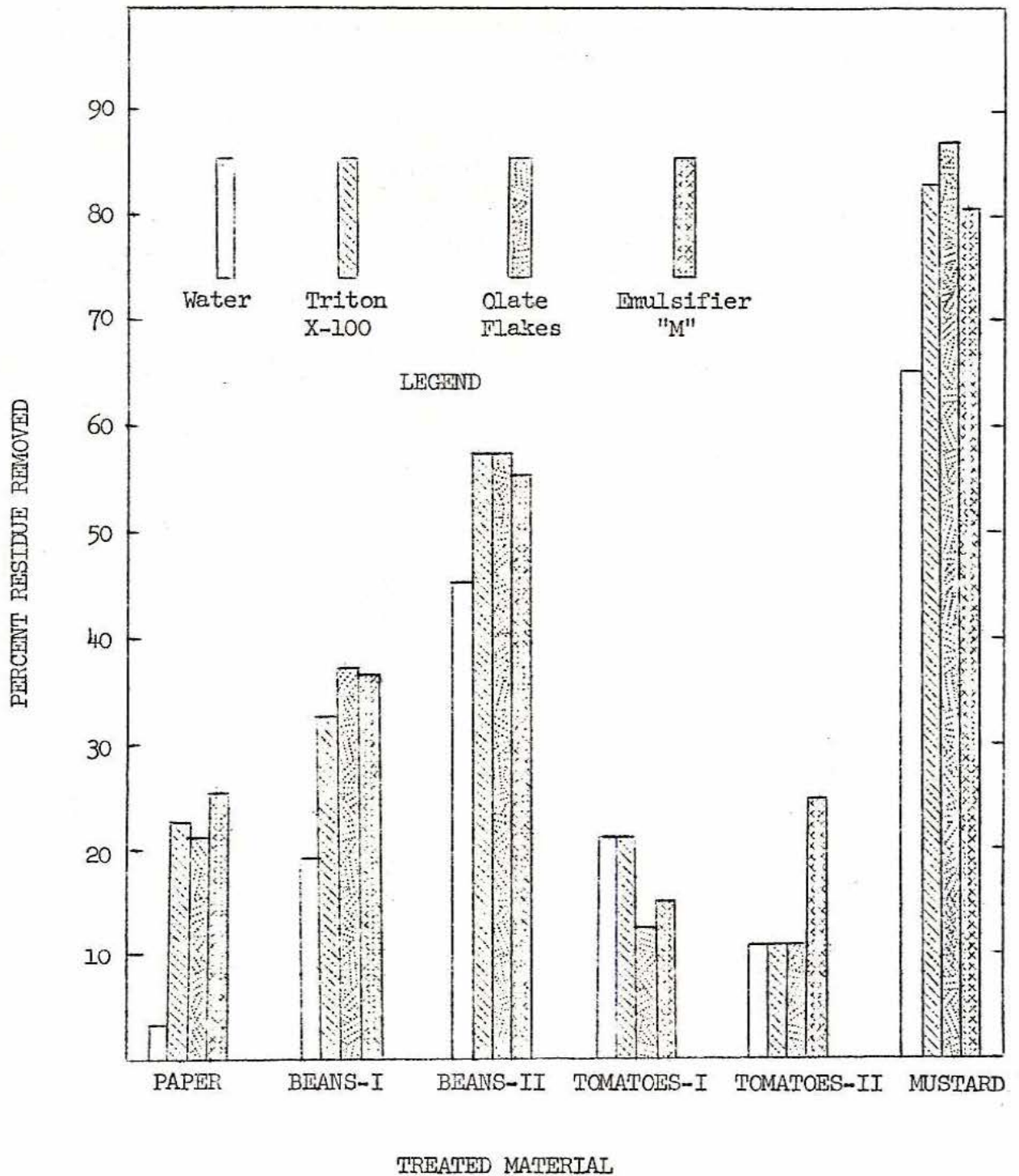


Fig. 2--The effect of detergent washing on the removal of surface residues of parathion from treated materials.

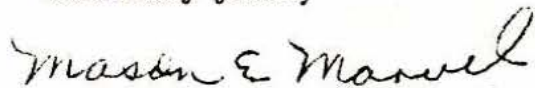
Even though parathion was not applied to celery in this experiment comparable residue removal could be expected as was obtained on the other crops.

Data was collected on the quality of the vegetables for a period following washing. During storage after washing, vegetables washed with synthetic detergents lost more weight than where washed in soap solutions or water alone. The synthetic detergents caused some injury to beans, but to none of the other crops.

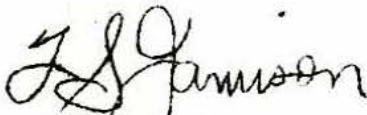
Parathion residues were relatively light and significant amounts were removed 24 hours following application. Highest residues were found on mustard greens (25 PPM) but were reduced to 3 PPM by detergent washing. Toxaphene residues ranged from 5 PPM on tomatoes to more than 200 PPM on mustard greens. Water and detergents removed significant amounts from all vegetables except tomatoes. The removal of residues by water in most cases, as shown by the graphs, is good. Neutral soap does a somewhat better job and could be used without creating a residue problem itself.

In conclusion we would like to emphasize that this information should never be used to violate recommendations and the use of these methods for removal of residues should not be necessary when you apply the proper chemical at the recommended rate and do not apply nearer to harvest than allowed.

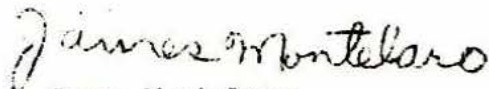
Sincerely yours,



Mason E. Marvel
Assistant Vegetable
Crop Specialist



F. S. Jamison
Vegetable Crops
Specialist



James Montelaro
Associate Vegetable
Crop Specialist

MEM:bb