

RAGWEED INVASION OF OREGON

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THE unique absence of ragweed from the Pacific Northwest has been of interest to aerobiologists as well as to the ragweed hay fever sufferers who have sought refuge and often permanent residence here. It has been a source of wonder that the fertile, highly cultivated valleys west of the Cascade Mountains have remained free of this weed, which is indigenous to most of the North American continent. Even in these past several decades, with extensive cross-continental travel, this area remained apparently free from invasion by seeds of ragweed plants other than the occasional ones found growing along the railroad tracks. In the past, the periodic report of large areas infested with this weed would invariably prove to be a case of mistaken identity.

Several years ago, isolated pollen grains of ragweed were found on the slides placed on the roof of the Medical-Dental Building in the metropolitan center of Portland. This prompted field surveys, which, with the aid of the County Agent, revealed a large acreage in the adjoining Clackamas County overrun by common short ragweed. This contaminated area was so sharply delineated that it seemed to have been planted. In fact, an apocryphal story suggested that an Iowa farmer, who came there many years ago to homestead that piece of land, brought with him some small grain contaminated by the seed of the ragweed, and the latter has flourished in its confines long after the original farmer departed in discouragement.

In the past decade, the state of Oregon has had a population increase of over 35 per cent. Most of this influx was from other states where ragweed flourishes, and some of these new arrivals came specifically to get away from the cause of their yearly affliction. A number were pleasantly surprised to be so well in August and September. To the newcomer from the middle west and east, the sight of a roadside overgrown with this short ragweed was too familiar to provoke any real interest. To the native, these weeds and their implications were so entirely foreign that they apparently remained unnoticed for several years.

Yet, a good deal of interest was aroused, in 1949, over this discovery, and although a certain amount of inertia and divided responsibility among government agencies prevented the establishment of a program of control, the newspapers civic organizations and leaders, and a number of refugees from midwest and eastern ragweed hay fever seasons, contributed time and funds to begin such a program of weed eradication. In late July of 1950, several weed control methods were applied to the original area. Mr. Frank G. Mackaness, Agriculture Consultant for Portland General Electric Company, was invaluable in his efforts, and the following are his observations.

"From the experience we have had with ragweed (*Ambrosia artemisiifolia*) in this region I should say that it falls into that group of plants which is

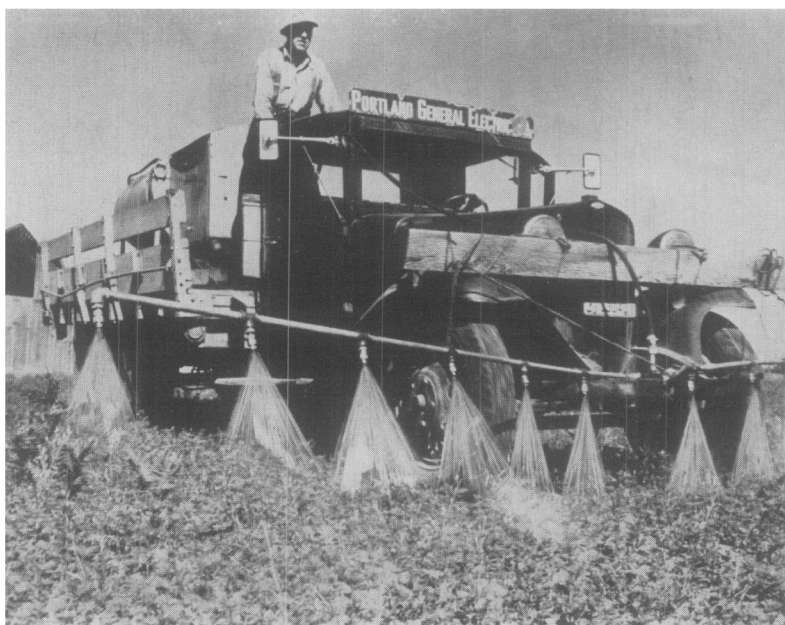


Fig. 1.—Spraying truck showing boom mounted with Monarch Nozzles attached.



Fig. 2.—Grassland showing no ragweed plants in 1951, which was heavily infested in 1950, but was thoroughly sprayed with the sodium salt of 2,4-D 95 per cent.

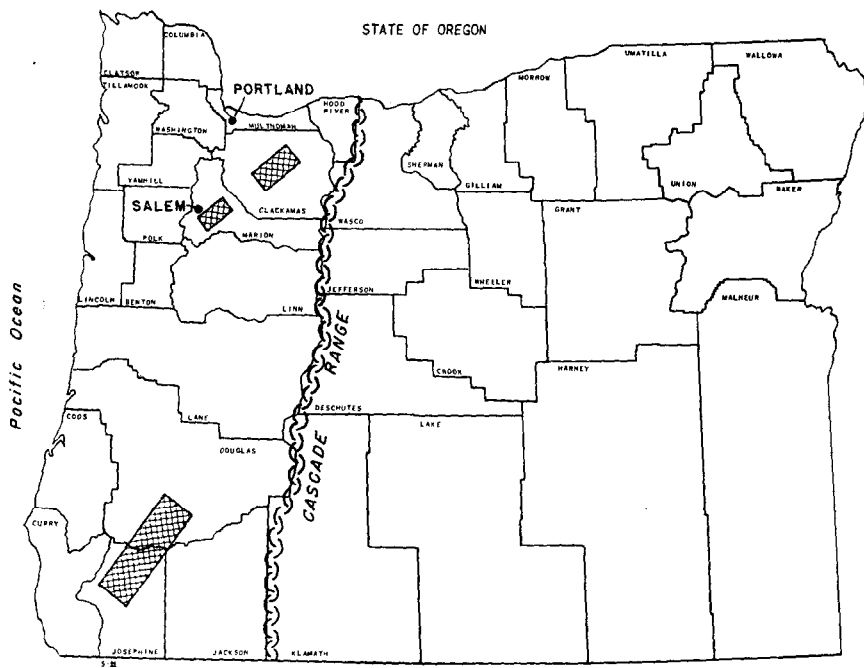


Fig. 3.—Areas where ragweed was found or reported to exist are shown by cross-hatch.



Fig. 4.—A barley field near Salem, Oregon, overgrown with ragweed.

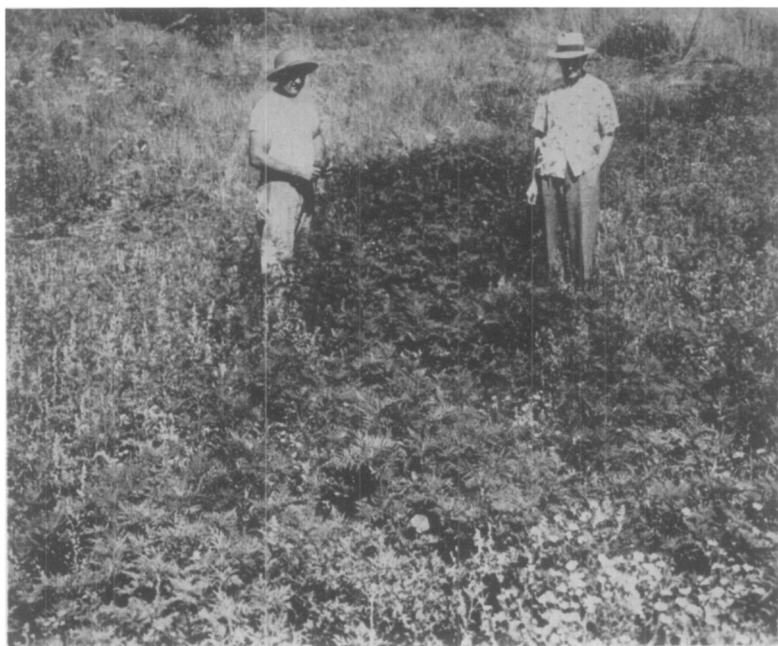


Fig. 5.—A single swath of ragweed in a drainage ditch near Salem, Oregon.

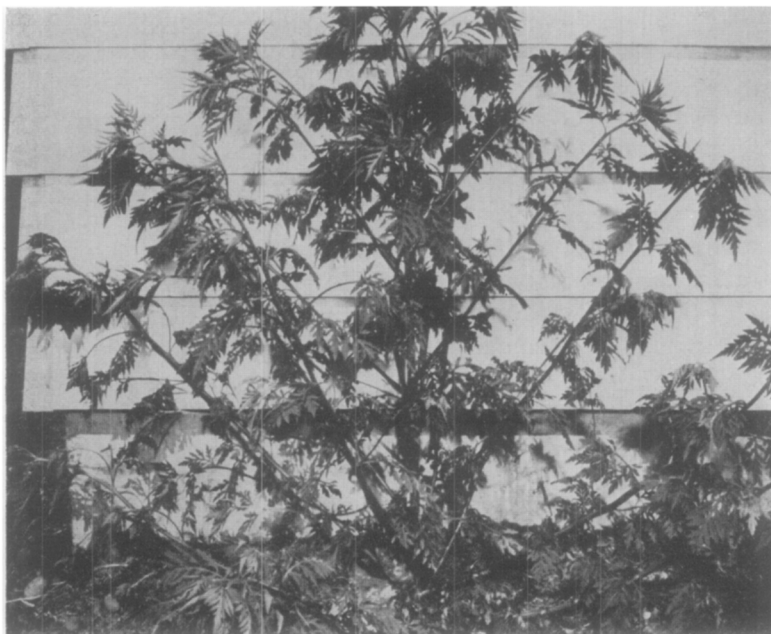


Fig. 6.—A close-up view of a robust ragweed plant found among those seen in Fig. 5.

very easily killed by 2,4-D and related chemicals. Plants of all ages from the smallest seedling to the mature fruiting plant appear to be equally susceptible and I have reason to believe that spraying dormant seeds renders them inviable.

"Of the several types of spray tried in 1950 on the McComas farm, one gave incomparably better results than the others. This was a Chipman Chemical formulation of the Sodium Salt of 2,4-D 95%, which they no longer manufacture. It is a relatively insoluble material in any but very dilute concentrations. We mixed 20 lbs. of the powder in 200 gallons of water in a sprayer fitted with extra agitators achieving thereby a dispersion rather than a solution. This was then applied through a conventional boom mounted 24" above the ground with Monarch Nozzles, type F 96, having orifices of 67/1000" spaced every 18 inches [Fig. 1]. A pressure of 200 pounds was maintained, the rig travelled 7 miles per hour and covered about 5 acres with the 200 gallons.

"The immediate kill on visible ragweed was the same in all cases whether the 2,4-D was applied as an amine, sodium salt or isopropyl ester, but the sodium salt described above either had sufficient residual effect to kill seedlings as they germinated or it penetrated the ground sufficiently to render inviable seeds near the surface. At any rate, upon inspection in the summer of 1951, this formerly infested field had ragweed plants only on the mole hills [Fig. 2].

"There is one brighter side to the problem. In the areas where the weed has been reported in the Willamette Valley, grassland farming would be as profitable or more profitable than the indifferent catch crops presently raised. Managed grass land coupled with regularly repeated spraying to catch the seedlings as they emerge from the vast amount of buried seed seems to offer the greatest likelihood for ultimate eradication."

The well-publicized activities in eradication of one ragweed patch provoked reports of infestations in adjoining Marion County, and in Douglas and southernmost Josephine Counties—all west of the Cascade Range. (Fig. 3.) In Marion County, and particularly in the outskirts of the capital city of Salem, this infestation has become quite extensive, especially along the roadsides, railroad tracks, and in adjoining grain fields. (Fig. 4.) There is, therefore, a real threat to the entire, extensive, highly cultivated Willamette Valley, which is one of the most productive and the most highly populated areas of the state.

We do not know how long this infestation has been reseeding its confines. Samples of soil at various depths for viable ragweed seeds would be informative. It is reasonable to believe from the finding of seedlings on mounds made by rodents that the seeds might be found at a considerable depth and may remain viable for a number of years. Such conjectures must lead to well-organized responsibility for control of the present infestations and constant vigilance for new areas of ragweed invasion.

SUMMARY AND CONCLUSIONS

1. Common ragweed has finally invaded the Pacific Northwest which has, in the past, boasted freedom from this hay fever-producing plant.

2. The atmospheric pollen count, even in close proximity to the contaminated areas, is minimal and no clinical hay fever due to ragweed has yet been reported.

3. With the population increase, many thousand former ragweed sufferers are now living in this area. With our mild weather, the local pollen season may extend from February to November, rather than ending, as it does now, in July.

4. Effectiveness of certain methods of eradication have been reported and methods of further control have been suggested.

5. Present problem of control of this infestation of ragweed would be inexpensive and relatively easy.

6. The American Academy of Allergy could, through positive interest, contribute a great deal in arousing concern and a sense of responsibility on the part of civic organizations, governmental agencies, railroads and the Highway Commission and local boards of health to act promptly and maintain a constant vigilance in keeping ragweed, at least "clinically," out of the Pacific Northwest.