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## Ragweed Control in Oregon

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**REPORT  
on  
RAGWEED CONTROL IN OREGON**

**To the Board of Governors  
The City Club of Portland:**

This Committee was directed "to inquire into and evaluate" five specific sub-topics. These form the outline of our report and are in essence:

1. "The extent of ragweed infestation in Oregon and in particular any marked increase or spread in such infestation;"
2. "The hazard to health, the number of people who may be affected in the present stage of infestation and with the further spread of ragweed, if this is found likely;"
3. "Extent of economic loss through morbidity of Oregon citizens . . ."
4. "Control measures undertaken to date in Oregon, and their effectiveness;"
5. To study "further measures to be taken, if desirable, including legislation or other measures to be taken at State or County levels."

**I. EXTENT OF RAGWEED IN OREGON**

There is only one species of ragweed in Oregon, prevalent enough to cause trouble. This is common ragweed (*Ambrosia Artemisiifolia*). Therefore this report is concerned only with common ragweed. Oregon's first botanically verified report of ragweed was in 1919.<sup>(1)</sup>

Aside from a few miscellaneous observations, the only source of information on ragweed in Oregon is a sketchy survey made by the State Department of Agriculture in 1954. The survey was made mostly along the roads and highways. The Department states: "The surveys were by no means complete; sixteen counties were not checked and it is possible further studies will find common ragweed in some of them."<sup>(2)</sup>

The result of the survey showed ragweed in twelve counties varying from moderate to heavy infestation. It showed Josephine County with at least 1,500 acres infested. The Milton-Freewater area with the greatest amount of infestation, had most of the 30,000 acres reported.

In 1956, the same department employee who made the 1954 survey made another survey in the nature of a check and reported:

"Excluding Josephine county in the section of the State west of the Cascade mountains our previous estimates ranged from 600 acres to 1,000 acres. Our revised estimate is approximately 3,500 acres, most of this increase being in Clackamas and Marion counties . . . The increase in Marion county (and to some extent in Polk county) is from newly determined infestations"<sup>(3)</sup>

The results of the two surveys may be compared as follows:

County	1954 Survey	1956 Survey
Umatilla . . . . .	Heavy . . . . .	Increase
Josephine . . . . .	Heavy . . . . .	Increase
Douglas . . . . .	Limited . . . . .	Limited
Clackamas . . . . .	Limited . . . . .	Increase (heavy)
Marion . . . . .	Moderate . . . . .	Increase (heavy)
Polk . . . . .	Moderate . . . . .	Increase
Benton . . . . .	Limited . . . . .	Limited

(1) Dr. Helen M. Gilkey, Professor Emeritus of Botany, Oregon State College, in talk to committee, December 13, 1956.  
 (2) Report of Ways and Means Committee, 48th Legislative Assembly.  
 (3) Hugh Taylor, letter to Frank McKennon, November 1, 1956. (Department of Agriculture inter-office communication).

County	1954 Survey	1955 Survey
Jackson.....	Moderate.....	Moderate
Morrow.....	Moderate.....	Moderate
Baker.....	Limited.....	Limited
Hood River.....	Limited.....	Limited
Columbia.....	Limited.....	
Yamhill.....		Limited

(The 1954 report showed no ragweed in the following counties: Klamath, Lake, Harney, Malheur, Grant, Jefferson, Crook, Deschutes, and Union.)

To sum up, no precisely accurate data exists as to either the amount of infestation or its rate of spread. The Department of Agriculture surveys are mainly the results of the compilation of existing information rather than field surveys. The existing information was furnished by such persons as county agents who have only recently been sufficiently well instructed to be able to identify ragweed.

The second sub-topic which the Committee was to consider was "the hazard to health involved; the number of people who may be affected, both in the present stage of infestation and with the further spread of ragweed, if this is found likely," and the third was in part: "Extent of economic loss through morbidity of Oregon citizens . . ." Both of these topics are best considered as a single unit.

## II. THE MEDICAL PROBLEMS OF RAGWEED

### 1. *Ragweed, Hay Fever and Asthma.*

The medical problem associated with ragweed is that of hay fever and asthma. The chief symptoms of hay fever are coryza, sneezing, rhinorrhea, headache, and intense itching of the eyes and upper air passages. These symptoms can be produced by ragweed and other pollens.

About one percent of all the population of the United States is susceptible to hay fever. (4) More than three-quarters of all seasonal hay fever in the United States is caused by ragweed. (5) Hay fever is not life endangering.

Asthma is a more serious condition which may follow hay fever of long standing. It is characterized by difficulty in breathing, coughing, wheezing, and a sense of constriction of the chest, and is due to hypersensitivity to inhaled or ingested substances, such as pollen.

Asthma is a condition which develops in about 30% of all persons who have hay fever over a long period of time. (6)

### 2. *Characteristics of Ragweed that make it a major cause of Hay Fever.*

The characteristics of pollen necessary for it to function as a cause of hay fever are as follows: (7)

1. The pollen contains an excitent of hay fever.
2. It is wind-borne.
3. It is produced in large quantities.
4. It is sufficiently buoyant to be carried a considerable distance by the wind.
5. It is produced by a plant which is widely and abundantly distributed.

Ragweed pollen fulfills these requirements.

An average city lot of ragweed is capable of producing 100 ounces of pollen—about 60 pounds per acre. (8) The pollen rises in an immense cloud with warm air currents and

(4) Vaughan and Black, *Practices of Allergy*, 2nd Ed. C. V. Mosby, St. Louis, Missouri.

(5) *Ibid*, page 486.

(6) Cecil and Loeb, *Textbook of Medicine*, 9th Ed. page 471.

(7) Thommen, cited by Black, J. H., M. D., *Diseases of Respiratory System, Practice of Medicine*, Volume 5, page 482.

(8) Vaughn and Black, *Practice of Allergy*, 2nd Ed., C. V. Mosby Co., St. Louis, 1948, page 449.

descends in the evenings as air cools. Heavy winds stir more pollen into the air and carry it farther; thus storms may be accompanied by "epidemics of hay fever." (9)

One of the characteristics of the ragweed family is the precision of its annual flowering period. The principal factor governing the time of flowering is the length of the daylight, and thus the ragweed hay fever onset can be predicted almost to the day in any given latitude. (10) Ragweed-flowering is not influenced by weather conditions.

### 3. *Quantity of Ragweed Pollen required to cause Hay Fever.*

There is no data to show just how many ragweed plants per acre are necessary to contaminate the air with disease-producing quantities of pollen. The amount of air pollution by ragweed (and other) pollens is expressed by counts on slides exposed for this purpose.

The counts are used, with other factors, to construct a ragweed index which is an arbitrary system used to compare ragweed conditions in different communities. Below an index of 10, a community is "good"; above an index of 10, it is "not recommended." The following index figures have been published for Portland: 1954, .77; 1955, .57. (11)

The Committee, acting through its medical subcommittee, headed by Dr. Frank B. Queen, has made repeated efforts to ascertain all the facts regarding pollen counts in Oregon. It is the opinion of the committee that few pollen counts are available, and the various news stories which appear from time to time concerning pollen counts are all based on these counts. In the opinion of the committee, these pollen counts are not of great significance, in the absence of any consistent comparative counts in other years. Counts taken to date show a level so low that ragweed does not constitute a health problem at the *present* time in Western Oregon.

### 4. *Anticipated Hay Fever and Asthma morbidity and mortality if Oregon or the Willamette Valley become infested with Ragweed.*

Based upon accepted incidence figures in Oregon there are about 16,600 potential hay fever sufferers. Only perhaps 4,150 people now have hay fever. If ragweed becomes common, 12,500 more persons in Oregon will have hay fever. Of these, 8,000 now reside in the comparatively ragweed-free Willamette Valley. Ultimately 2,400 of these persons may become asthmatic and if ragweed covers the state there may well be a total of 3,700 so afflicted. It should be remembered that as the population increases, the numbers of hay fever and asthma victims will increase also. In addition, some persons who now get hay fever from tree and grass pollens in early summer will become sensitive to ragweed pollen, and their season of suffering may well be extended into the early fall. Should ragweed hay fever become extensive in Oregon, we should expect an appreciable increase in the annual asthma mortality rate.

### 5. *Prevention and Palliation of Ragweed Hay Fever and Asthma.*

Ragweed hay fever prevention can be accomplished only by pollen avoidance during ragweed season: August, September, and to mid-October in Oregon. It is, of course, the frequency of contact and the quantity of the offending allergen that largely determines the amount of resultant disability. With continued avoidance of contact, the natural tendency of the allergic state is toward recovery, and loss of sensitization. Pollen avoidance in a ragweed infested area is virtually impossible.

Palliation of variable success may be accomplished either by pre-seasonal hyposensitization, or by symptomatic medical treatment. A ten-week schedule, with a total of 19 injections, is recommended for hyposensitization. Symptomatic treatment consists of administration of various drugs for the relief of symptoms. There is no medical treatment that will *cure* ragweed hay fever.

(9) *Ibid*, page 449.

(10) *Ibid*, page 449.

(11) "Hay Fever Holiday," April, 1955 and 1956.

#### 6. *Potential Cost of Medical Treatment for Ragweed Hay Fever and Asthma.*

The cost of hyposensitization is estimated to be about \$150 per person per season. If 1/10 of the 8,000 susceptible persons in Oregon requested hyposensitization, the cost would be approximately \$120,000 a year. If only symptomatic relief were sought and half of those affected consulted their doctors once during the hay fever season, the medical cost might be as much as \$20,000, excluding the cost of medications used. The cost of these medications might very reasonably double these annual cost estimates.

So far as the 2,400 asthmatics are concerned, one can only guess the cost of their care. If none required hospitalization, cost of care of asthmatics in Oregon as a result of ragweed hay fever could be \$12,000 annually.

Ragweed, if established in Oregon, can be estimated to cost for physician care alone a minimum of not less than \$77,500 per year for the population now in Oregon, and it might be as much as \$200,000 annually. These costs do not include evaluation of cost in terms of time lost, lowered efficiency, nor other indirect losses.

### III. ECONOMIC LOSS ASIDE FROM MEDICAL LOSS.

Information on economic loss caused by ragweed in Oregon is almost non-existent. The report of the State Department of Agriculture to the 1955 Legislature states in part: "Common ragweed is of minor importance as an agricultural weed . . . but may affect farm land values."

No specific figures were found for the number of persons considering entry into Oregon or actually entering the state because of the relative freedom from ragweed. Indeed the figures for all tourists appear to be merely estimates at best. According to figures compiled by the Oregon State Board of Health, the total number of in-migrants (not tourists) in the period 1950 to 1955 was 44,389.

From its study the committee knows that many people throughout the nation are aware that Western Oregon is ragweed-free. How many of these may come here for that reason alone, we do not know. We note that only one percent of the general population is estimated to be suffering from hay fever.

### IV. CONTROL MEASURES

The fourth paragraph of the committee's directive required it to inquire into and evaluate "Control measures undertaken to date in Oregon, and their effectiveness."

There are at present two laws concerning ragweed control in Oregon, termed in this report as the "Ragweed Control Law" and the "General Weed Control Law."<sup>(12)</sup>

The responsibility for the enforcement of the Ragweed Control Law is placed upon the Oregon Department of Agriculture. There is one important qualification to this rule. Any county court may take over administration of the law in its county if three conditions are met: (1) the county declares itself a weed control district under the general weed law; (2) the county declares ragweed a noxious weed; (3) written notice is given to the Department for county control. No county court has ever accepted full responsibility for ragweed control.

The Ragweed Control Law declares ragweed to be a public nuisance, and places the basic responsibility for its eradication upon the landowner. He must bear the cost of eradication by a method approved by the department. If he fails, the department may do the work itself. The cost thereof becomes a lien on the land and may be foreclosed to secure payments. The State Highway Commission and various public bodies are required to eradicate ragweed on lands owned or controlled by them.

No funds were appropriated by either the 1953 or 1955 Legislature to administer the Law. In June 1953 the Department did request the Oregon State Emergency Board for

(12) Ragweed Control Law—Oregon Laws 1953, Chapter 666, now codified as ORS 452.310 - 452.420, and General Weed Control Law, ORS 570.505 - 570.575.

funds to operate a control program through June 1955. The Department, by letter, stated that \$18,400 was needed, of which \$8,400 was for wages. No money was voted, but a survey of the ragweed situation was authorized. The resultant report stated that "The condition was not as serious as first anticipated." The matter was dropped until the Emergency Board, in September 1954, made \$2,000 available to the State Department of Agriculture for an additional study to be made for legislative consideration.

The Department spent \$1,440.59 of the \$2,000 allocated, yet the report of the Department stated: "The surveys were by no means complete . . ." It is said in the report that: "The surveys were limited because: (a) only one man was available for the work; (b) shortage of time; (c) weather conditions and early frost in higher elevations." However, the department did have authority to hire additional personnel, and the authorization by the Emergency Board did not require completion of the survey in the fall of 1954 but only by January 1, 1955.

Aside from the 1954 survey and its 1956 modernization, the department has done very little to administer the present law on the grounds of a lack of an appropriation. Very recently the department has apparently done some spraying which had to be done as part of other programs of the department. The department also expects to conduct spot surveys, "as we have personnel and time available to do so."

The ragweed law provides that various public bodies "shall eradicate ragweed in accordance with methods prescribed by the department on any land owned by them . . ." The department has not issued any instructions to public bodies but "has had numerous conferences and discussions with other public groups" and has notified other public agencies of infestations on property administered by them. In response the Oregon State Highway Commission has apparently treated known infestations along state highways in the Willamette Valley, and some counties have done likewise on county roads.

To sum up, the 1953 law has had little practical effect. The legislature is basically at fault. It has twice failed to make any appropriations so that the law could be administered properly, and in 1955 failed to amend the law despite its unworkability which is discussed below under conclusion No. 4.

However, until very recently, the Department does not seem to have been particularly concerned with the problem, and has shown little initiative in meeting it. Mr. Short, the Director of the Department, has, however, served as chairman of the ragweed subcommittee of the Committee on Natural Resources which has recently drafted and proposed greatly improved ragweed legislation.

#### GENERAL WEED CONTROL LAW

The General Weed Control Law declares noxious weeds to be a menace to the public welfare and gives to the county courts the right to declare the county weed control district. Several counties under this law have listed ragweed as a noxious weed. This law is administered by county appointed inspectors, who post notices requiring destruction of the weeds. If the owner fails to comply the district attorney may take enforcement steps or the inspector may be directed by the county court to eradicate the weed. This expense then becomes a lien upon the property.

The county court is obliged to levy taxes to control weeds on county roads and lands. The state, the State Highway Commission, reclamation districts and municipalities are to control noxious weeds on lands owned by them. Whether or not the county or any part thereof is declared or continued as a weed control district rests strictly with local initiative.

Marion County was the only county where the committee was able to learn any details as to a ragweed control program under the General Weed Control Law. R. H. Bunnage and George Read of this committee inspected the Marion County areas on separate occasions. They concluded that at the present stage in Marion County, the ragweed infestation is largely a problem of the roads and highways.

About \$10,000 a year is spent by Marion County on all weed control, and the bulk of this is used to control tansy ragwort but some ragweed control is done. Those administering this program do not feel that the eradication of ragweed as required by the law is a practical objective. When control is impractical or too expensive it is not undertaken, but county equipment and manpower is used to assist small landowners.

The experience of Clackamas County with tansy ragwort control suggests the problems which a ragweed control program under the general noxious weed law may encounter. Ragweed and tansy ragwort have no relationship except that they are both noxious weeds. Unlike ragweed, tansy ragwort can mean important economic loss to the farmer by killing his cattle. Even so, efforts at tansy ragwort control in Clackamas County resulted in  $3\frac{1}{2}\%$  non-compliance, mostly from absentee landowners. Alleged administrative difficulties were: False reports of compliance, failure of public agencies to control weeds on their lands, improper spraying by owners, difficulties of ascertaining boundary lines so as to properly assess costs, objections to spraying costs which were sometimes large in relation to value of land sprayed, inequities in assessment of control costs, and budgetary difficulties from slow collection of eradication costs.

#### V. FURTHER MEASURES TO BE TAKEN

Finally, the committee was directed to consider "further measures to be taken, if desirable, including legislation or other measures to be taken at State or County levels."

In order to determine feasibility of ragweed control, we must have some knowledge of the plant's characteristics. Ragweed is a late emerging annual plant. It grows from seed in spring and blossoms about August. The seeds, which do *not* cause hay fever are heavy, carried by water, and animals and man. The pollen, which is the only disease causing element, can be carried many miles by wind.

#### TYPE OF LAND IN RELATION TO CONTROL

Mr. Alfred H. Fletcher, an expert on ragweed control, states:

"The presence of ragweed in an area indicates disturbed soil which is left denuded to recover as best it can through plant succession, beginning with weeds including ragweed and progressing through a series of successions to a more stabilized vegetation. This may take ten to fifteen years if left to nature."<sup>(13)</sup>

The committee has attempted to analyze the literature available and from it draws the following conclusions:

1. Ragweed does not grow on heavily forested land since it is not sufficiently shade tolerant.<sup>(14)</sup>

2. Ragweed will grow easily in cultivated land, but the more land is cultivated the less is ragweed a problem since plowing, discing, and mowing tend to control the weed.<sup>(15)</sup>

3. The most serious control problem exists upon the various types of waste land: highway shoulders, vacant lots, abandoned or neglected farms, and areas around industries.<sup>(16)</sup> The problem on these waste lands is most serious when the soil is occasionally disturbed; for example, road shoulders which are occasionally scraped.

(13) Alfred H. Fletcher, "Procedures of Promoting and Operating Ragweed Control Program." Public Health News, Volume 36, No. 5, May, 1955, New Jersey State Department of Health page 170 et seq.

(14) "Hayfever Studies in New Hampshire, 1948" New Hampshire State Department of Health, pages 67, 69, 75.

(15) "Distribution of Certain Weeds of Economic Importance in New Jersey," New Jersey Department of Agriculture Circular No. 392, Nov. 1953, page 4. Report of Oregon State Department of Agriculture to Ways and Means Committee, 48th Legislative Session.

(16) "Hayfever Studies in New Hampshire, 1948", Ibid, page 67. Distribution of Certain Weeds of Economic Importance in New Jersey, Ibid, page 5. Ragweed and Its Control, New Jersey Agricultural Experiment Station, April 1950, Circular 535.

The Detroit Department of Health's report entitled "Ragweed Control Evaluation Program 1950-1951" sums the matter up as follows:

"Ragweed is a pioneer annual that prefers disturbed or new soils. Trampled areas in playgrounds or along side-walks and streets often support dense growths. Abandoned gardens, unsodded fill or borrow areas, undeveloped lawns and alleys, freshly graded excavations, garden borders, storage or parking areas, are also most likely to be covered or partially covered with ragweed."

The foregoing conclusions about land types are based upon studies elsewhere. However, the committee believes that they are in part corroborated for Oregon by testimony before this committee and by inspection trips made by certain of its members.

Factors which favor the control of ragweed are: (a) it is an annual and therefore more easily controlled than are perennials; (b) it is a pioneer plant which tends to be crowded out by hardier plants of a more permanent type *if the soil is undisturbed*; (c) It is readily destroyed by heavy frosts; (d) last and most decisive it is readily destroyed by 2, 4-D chemical spray. There are some factors which work against control; seeds mature late after other crops are harvested, seeds remain viable in the soil for many years, and there are large numbers of seeds. The balance, however, would seem to be in favor of the possibility of control.

The first ambitious effort to control ragweed was in Chicago in the early thirties. (17) The effort was continued for three years, but not all of the wasteland in the city was covered, and pollen counts continued to increase. However 2, 4-D sprays were not then available.

New York City began a nine year campaign in 1946. (18) Greatly improved methods of weed destruction were available, including 2, 4-D. About \$85,000 per year was spent. The acreage of ragweed was reduced by not more than half in the nine years campaign, and during this time pollen counts showed no appreciable change.

In both cities the control effort was made to control an intense infestation of ragweed in what appears to be its original habitat.

Both control efforts were based on the premise that localized control can be effective. Chicago "forgot" about the thousands of acres of ragweed in the southwest suburbs and the millions of acres of weed-producing farmland beyond the suburbs. New York found that about half of its pollen came from New Jersey, Pennsylvania, and to a large degree from upper New York State. In the present state of knowledge about pollen control it is impossible to state whether the local control premise is in fact true. These experiments seem to indicate it is false.

Both Durham and Walzer, in evaluating the experiences of Chicago and New York, respectively, emphasize the role of wind, since they assume that it is pollen from outside a city which is a critical factor. In the Willamette Valley, wind would not seem to be so large a factor because control would be attempted over a wide area and because winds are the prevailing westerlies from the ocean.

Detroit attempted control under a model ordinance. Some reduction in pollen counts was achieved, although not in clearly significant amounts. (19)

The only effort to control ragweed on a state-wide basis seems to have been in New Jersey. Its program has consisted mainly of encouraging municipalities to control the

(17) Durham, "The Contribution of Aerobiology to Weed Control," Proc. Ninth Annual Meeting, Northeastern Weed Control Conference, New York City, Jan. 1955.

(18) Walzer and Siegel, "The Effectiveness of the Ragweed Eradication Campaigns in New York City," the Journal of Allergy, March 1956, page 113.

(19) Ruskin, "Engineering Procedures for Ragweed Control," before Weed Society of America, New York City, Jan. 1956, Appendix page 8.



weed, and organizing cooperation by state departments in their respective spheres of interest. (20) The basic result seems to have been stimulation of interest.

New Jersey is highly urbanized and ragweed is well established there. No single control program can quickly change the situation. By contrast, much of Oregon's ragweed is in areas outside municipalities and is not well established; therefore, emphasis should be on a speedy, unified program.

None of the cases which came to the committee's attention had an opportunity to apply modern control methods *before* ragweed had become entrenched, or to apply them in an environment favorable to control.

### CAN RAGWEED BE CONTROLLED IN OREGON?

Mr. Oren C. Durham, perhaps the country's foremost authority on ragweed, had the following to say in a letter to this committee, part of which is quoted:

"If you read up to this point without being discouraged I should hasten to say that the problem of weed control in Western Oregon and Washington is as different from that of the Eastern half of the United States as day and night. Your agricultural and climatic situation is absolutely unique. Your prevailing westerly winds from the Pacific are pollen free. Your winter rains and moderate temperatures permit grasses to flourish throughout the winter and spring . . . Yours is therefore a pioneer job." (21)

In a letter to the committee Dr. Walzer who wrote a study of New York's control experience, states:

"Our findings indicate that localized attempts in individual communities to eliminate ragweed permanently is a hopeless job where ragweed is a natural inhabitant. However, we heartily endorse the opinion of Mr. Durham that ragweed eradication can successfully be accomplished where this plant is not indigenous and where it appears as a relatively sparse invader. Early, thorough and widespread campaigns should produce the desired result though it may take uninterrupted application for more than a few years . . . We are fully convinced that complete eradication in your State is possible, provided the campaign is well organized and thoroughly executed." (22)

The best opinions available agree that ragweed can be controlled in the Willamette Valley and in Western Oregon generally. Ragweed is relatively easily controlled with 2, 4-D sprays. Other methods of control, when spray is impractical, are clean cultivation and clipping, combination planting and spraying, and pulling.

### CONTROL COSTS

Control costs will be partially recurring because of constant reinfection and the unlikelihood of complete eradication. Continuous control will be essential on a permanent basis although the sooner the action is taken the more likely it is that the recurring costs will be nominal.

It has been said that the cost of the use of 2, 4-D is only a fraction of the cost involved in mosquito control over an area of similar size. (23) New York City spent about \$85,000 a year to "eliminate" ragweed on 3,000 acres which figures out to about \$28.33

(20) Fletcher, "Ragweed Control in New Jersey," Hayfever Bulletin, Volume 7, No. 2, page 7.

(21) Letter to committee, Feb. 22, 1956.

(22) Letter to committee, April 18, 1956.

(23) Weinstein and Fletcher, "Essentials for the Control of Ragweed," American Journal of Public Health, May, 1948, 38:664-9.

an acre. <sup>(24)</sup> Detroit spent \$18,276.58 in 1953 for ragweed control on 2,925 acres or about \$6.25 per acre. For 1952, \$15,646.89 was spent on 2,575 acres or about \$6.08 per acre. <sup>(25)</sup>

Roadside spraying costs are as follows: A commercial sprayer in New York in 1953 quoted a rate of \$29.50 per mile per year for both sides of the road and back about 16 ft., involving three applications per year. <sup>(26)</sup> An engineer for the New Jersey Highway Authority in 1954 stated:

“By using the chemical spray method, it would cost approximately \$35.00 to \$40.00 per mile the first year. The second year would be about \$25.00 for the respraying of the same mile. The third year would be about \$10.00 per mile.” <sup>(27)</sup>

The committee was unable to secure any reliable figures on cost of spraying agricultural land. Private sprayers in Oregon advised the Department of Agriculture that their estimated cost was \$10.00 to \$12.00 per acre. Since the infestations in Western Oregon are scattered in small tracts over a wide area, it would appear probable that costs would be higher than Detroit's figure of \$6.25 for scattered parcels in an urban area.

The Department of Agriculture is asking for \$50,231 for two years' control on 2,500 acres (the remaining acreage in the control area is assumed to be taken care of by other public agencies and would appear in other appropriations). The figure of \$50,231 includes \$5,210 for purchase of equipment, \$5,000 being for a spray truck. If the remaining \$45,021 is divided by two, a figure of \$22,510 per year is obtained which on a 2,500 acre basis gives an acreage cost of about \$9.00 per acre without anything included for equipment.

Spray is estimated to cost \$4.00 per acre. The department figures that a full time agronomist would be required at \$5,670.00 per year plus an assistant for six months each year at \$2,100.00 per year and one fourth of the time of a secretary at \$786.00 per year. The \$50,231 appropriation requested breaks down as follows: salaries \$17,292, spray \$20,000, capital equipment \$5,210 and the remainder for miscellaneous items.

#### PROPOSED NEW RAGWEED LAW

The State of Oregon Committee on Natural Resources voted June 16, 1956 to sponsor changes in the present Ragweed Control Law. Former Governor Smith appointed a subcommittee to prepare the act. The act has been introduced by Representative Meek as House Bill 283. The act begins by repealing all of the present ragweed law, but continues the State Department of Agriculture as the administering agency. It repeats that common ragweed and giant ragweed are a public nuisance, but replaces the language “shall be eradicated and abated” with the language “shall be detected, controlled, and destroyed in the ragweed control area.”

The “ragweed control area” is designated as the Willamette Valley and counties west of the Cascades where, except for Josephine County, it is probably controllable without great difficulty.

These counties are: Benton, Clackamas, Clatsop, Columbia, Coos, Curry, Douglas, Lane, Lincoln, Marion, Multnomah, Polk, Tillamook, Washington and Yamhill.

The committee believes that the approach to the problem by designation of a control area is expedient and is likely to obtain legislative support for ragweed control. Apparently

(24) Walzer and Siegel, “The Effectiveness of Ragweed Eradication Campaigns in New York City.” The Journal of Allergy, Volume 27, No. 2, page 118-119, March 1956.

(25) Ruskin, “Engineering Procedures for Ragweed Control,” before Weed Society of America, New York City, January, 1956, Appendix page 14.

(26) Raymond J. McMahon, “Chemical Control of Roadside Vegetation,” before the American Association of State Highway Officials at Pittsburgh, Pa., Nov. 11, 1953.

(27) Oliver A. Deakin in a paper prepared for Weed Control Conference, Rutgers University, published under title, “The Why of Weed Control,” New Jersey Municipalities, Volume 31, No. 5, pages 4-6, May, 1954.

one reason for the failure to get appropriations for control in the past has been the extreme difficulty of control in Umatilla county where the weed has become well established.

The new act provides that the department may control ragweed outside the control area if the landowner requests it and if it can be undertaken without handicapping the control area activities. The present law lists certain public bodies as being responsible for ragweed eradication on land owned by them; the act expands this list to cover all public bodies as well as public utilities and transport companies but limits responsibility to the control area only. They are to control ragweed at their own expense.

Upon failure to comply with the eradication notice, the law provides the department may enter upon the land of such bodies and destroy the ragweed. The department may then sue "for recovery of the reasonable worth of services, labor and materials furnished."

This right of the department is restricted to the public bodies, public utilities, and transportation companies, and does not extend to the ordinary private owner of land. The act contemplates that the state will bear the cost of eradication on private land generally.

The act gives broad powers to the State Department of Agriculture to carry out the program. It may use any method feasible, purchase equipment, and employ additional help. It may also enter into contracts with other persons and various bodies for ragweed control services. It may require such contractor to furnish a liability bond for the protection of persons or property.

The act provides that receipts go into the General Fund to the credit of the State Department of Agriculture. This would make a revolving fund as "all funds so received are continuously appropriated to the department for use in the administration of the act."

### CONCLUSIONS

While, as may be expected, not all members of the committee are in accord with every detail of this report, the committee has reached the following conclusions:

1. Ragweed does exist in Oregon and has been steadily though slowly on the increase. Only lack of funds and sufficient interest in the problem have prevented a clear picture of the extent of infestation from being developed.

2. Ragweed is primarily a health problem and of secondary importance to agriculture. The medical costs of treating ragweed hay fever and asthma in Oregon, while difficult to assess, are nonetheless real, and bound to increase. The estimated medical costs far outweigh the proposed control costs.

3. Control efforts have been made in a number of eastern areas, but by and large have failed. In early instances modern herbicides were not available. Usually too little was done too late. The weed was too widespread and was in its original habitat.

Ragweed in the Willamette Valley can be controlled. The Pacific Ocean and the Cascade range offer barriers to windborne pollens. Because of this unique geographical advantage enjoyed by this area and because the weed is not native to the region, nor well established, we believe control is possible. Since infestation in the Milton-Freewater area and Josephine county is already advanced it is believed control in those areas is not feasible at present.

4. The Ragweed Control Law and the General Weed Control Law, so far as ragweed control is concerned, are neither effective nor equitable for the following reasons:

- a. Both place the cost of eradication upon the landowners concerned, and landowner opposition dooms such a procedure to failure as a matter of practical politics. Landowner opposition is probably the basic reason no appropriation has been made to implement the Ragweed Control Law, and the reason few counties have designated ragweed as a noxious weed.

- b. Not only is having the landowners bear the cost of eradication unworkable, but it is also unfair because the presence of ragweed is not the fault of the owner and cost of eradication can be high in relation to land

value. Since ragweed is a unique public health rather than purely an agricultural problem, the cost of eradication should not be imposed upon landowners alone.

c. Ragweed control under the General Weed Control Law and under the Ragweed Control Law to the extent that the county courts assume its administration would depend upon coordinated actions by a great many county courts. This is unlikely. Each county court is particularly subject to pressures from local interests, and the ragweed problem does not respect county boundaries. Ragweed growing in a rural county may not bother many persons there, yet thousands of persons in urban areas of other counties may suffer from the windborne pollens.

d. State control by a state agency is consequently required. The present Ragweed Control Law allows shifting of responsibility for control between the county weed control districts run by local interests and a state department which finds the problem outside its primary interests and which has not been given funds to pursue a control program.

We do not criticize the General Weed Control Law insofar as it concerns ordinary agricultural weed controls; we do say that ragweed as a public health problem requires special legislation of its own administered by a state agency and not local interests.

This question is different and distinct from the use of personnel and equipment of existing weed control districts. Those should be used to the fullest extent technically feasible and there may be savings in so doing. A state agency could make contract arrangements with such local agencies to take advantage of local personnel and equipment, but all costs should be borne by the state and the sole responsibility for eradication should be on a state agency.

### RECOMMENDATIONS

The committee recommends that the Ragweed Control Bill sponsored by the State of Oregon Committee on Natural Resources be passed, with changes to be suggested; our reasons are:

1. The proposed bill is an improvement because it would place responsibility for ragweed control squarely upon an administrative agency using public money rather than upon the landowner.
2. Said agency is directed to *initiate* and pursue an effective ragweed detection program.
3. Control is to be restricted to an area in Oregon where control is feasible.
4. The act gives the agency broad powers to enter into contracts with federal and state agencies and other public bodies "whereby they will detect, destroy and control ragweed on property other than that owned by them." Such a procedure would make it possible for the administering agency to avoid building an expensive staff of its own and being forced to purchase equipment which would be used but a few weeks each year. One permanent employee could act as coordinator and disbursing officer.
5. Dual responsibility for control by shifts to the county courts would be discarded. Only one agency would be responsible for administration and enforcement.

The committee suggests the following changes in the proposed act:

1. The State Board of Health should be substituted for the Department of Agriculture as the administering agency. Ragweed is basically a public health problem. It exists primarily on waste and urban lands rather than on crop or pasture land. Ragweed control has been carried on primarily under public health agencies elsewhere. A control program should be accompanied by adequate pollen counting surveys, and this lies in the field of public health for technical reasons.

The administration has been given to the Department of Agriculture for the apparent reason that it is supposed to have the equipment and personnel for weed control. This does not seem a tenable reason for assigning ragweed control to it in view of the following facts. The department does not plan to use existing personnel except perhaps for one-fourth of the time of a stenographer but will hire an agronomist and an assistant. Second, the department does not have the equipment; its initial appropriation request includes \$5,000 for a spray truck. Since administration is starting from scratch, it would seem wiser to put administration of a health program where it belongs: with a health agency.

According to Oregon Blue Book for 1957-58, some of the present duties of the Board of Health are: "to have direct supervision over all matters relating to the preservation of the life and health of the people of the state; . . . to make sanitary inspections . . . ; to supervise and direct campground inspection . . . ; to supervise restaurant sanitation in the state; . . . to administer and enforce statutes relating to examination of journeyman plumbers and issuing certificates of competency . . . enforcement of plumbing code; . . . to administer and enforce statutes relating to manufacture and sale of bedding; . . ." (pp. 57-58) The duties quoted show that the Board of Health is engaged in a great many duties, and ragweed control is as closely related to its program as many of these.

At the present time, the Board has a Sanitation and Engineering Division which presently has two sections: Water Supply and Swimming Pool Section, and General Sanitation Section. (pp. 60-61) Each section has a number of miscellaneous duties, for example: the General Sanitation Section "inspects and issues certificates of sanitation to shellfish growing areas." It would not seem inappropriate to find a place for a Ragweed Control Section in the Sanitation and Engineering Division.

2. The act provides that federal, state, and other public bodies, as well as transportation companies and public utilities shall destroy and control ragweed at their own expense. This has been a feature of previous control programs and has failed. The same inequity that exists when landowners bear the control costs, also exist here, since ragweed is a public health matter and many public bodies, as well as transportation companies and public utilities, have little or nothing to do with public health. The only difference from the old approach is that a special group of taxpayers or ratepayers rather than ordinary private landowners bear the cost of a public health program.

So far as state agencies are concerned, it is better to concentrate the costs of control in one definite appropriation. The alternative is an appropriation split among several agencies, or even worse, that there be no provision in the appropriation of any given agency. It is illusory to tell public agencies to

do something and not give them the funds do to it. That has been tried with ragweed control and found wanting. State agencies live on their budgets, and if no money is appropriated specifically for ragweed control, it seems likely little will be done.

So far as transportation companies and public utilities are concerned, they are discriminated against since the act does not require other private land owners to bear the cost of control on their lands. This discrimination may be the basis of a successful legal attack on the act.<sup>(28)</sup>

So far as the federal government is concerned, it cannot be compelled by the state to eradicate ragweed on its land nor to pay for it if the state does the work. <sup>(29)</sup> The federal government may elect to do so but this will take time and legislation, and with ragweed control time is of the essence.

The administering agency should be required to reimburse all such aforementioned bodies for the direct costs of control when such control conforms to appropriate standards of performance. It should be expressly provided, however, that there should be no reimbursement for indirect costs or prorated administrative overhead.

3. We believe all control work should be carried out by crews recruited from various public agencies operating directly under the Board of Health for this purpose alone. Such crews could be given proper training and could accomplish their control work at the same time that ragweed was located. Since Control work would be concentrated in a few weeks each year, personnel and equipment could be borrowed from other agencies on a cost reimbursement basis.

The committee recommends that \$50,000 be appropriated for control work in the next biennium. The proposed act requests \$50,231.52, which appears reasonable since it is estimated that 3,500 acres must be treated in the proposed control area. Since control will cost at least \$6.00 per acre, the treatment of 7,000 acres in the next two years would approximate a cost of \$42,000, exclusive of overhead, pollen counts, etc.

Control costs for this same geographical area in 1954 would have been about \$12,000, if figured on the same basis. At that time a maximum of 1,000 acres was estimated to be ragweed infested. Presumably a two year delay has cost the state about \$15,000 a year if control is undertaken now. It is false economy not to act promptly if it is believed control should be attempted. For intelligent planning and assessment of results, surveys and pollen counts should be undertaken concurrently with control measures.

Time for effective control is running out, and an agency genuinely interested and concerned with this menace to public health should be chosen. Imagination and determination as well as appropriations are needed to carry out a ragweed control program. We recommend that the state of Oregon get on with the relatively simple job of spraying some 2, 4-D on three or four thousand acres of ragweed in western Oregon.

*Respectfully submitted,*

R. H. BUNNAGE	DR. WILBUR L. E. LARSON
ROSS COPPOCK	LEON A. PAINE
DR. WILLIAM GALEN	GEORGE L. READ
ARTHUR KAPLAN	NORMAN GRIFFITH, <i>Chairman</i>

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(28) The legal question presented would be whether or not this legislation would be deemed class legislation. The Oregon Supreme Court has said: "Classification is rendered invalid by Article 1, Section 20, Constitution of Oregon, only if it is arbitrary, unreasonableness, and not based upon differences in distinctive characteristics: . . ." Foeller v. Housing Authority of Portland, 198 Ore. 205,259. Compare Spicer v. Benefit Association 142 Ore. 574,589.

(29) Mayo v. U. S., 319 U. S. 441, 63 S. Ct. 1137, 87 L. Ed. 1504 147 A. L. R. 761, rehearing denied, 320 U. S. 810, 64 S. Ct. 27, 88 L. Ed. 489.

## MINORITY REPORT

TO THE BOARD OF GOVERNORS  
THE CITY CLUB OF PORTLAND:

Were it not for the apparent urgency of getting out some kind of a report while the Ragweed Control Bill is still before the Legislature, I should recommend that the whole matter of ragweed control be re-referred to the Ragweed Committee for further study.

In view of this legislative circumstance, however, and because of the considerable conscientious work done by the chairman and other committee members in the preparation of the majority report, I wish merely to recommend that the majority report be adopted with the exceptions of recommendations #3\* and #5(1) which I regard as premature on the basis of the research and analysis of which I am aware.

*Respectfully submitted,*

WILLIAM R. MORRISH

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\*With reference to the Western Oregon Counties designated as the area "probably controllable" at page 337.

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 MINORITY STATEMENT OF DR. QUEEN

TO THE BOARD OF GOVERNORS,  
THE CITY CLUB OF PORTLAND:

I concur in the dissent and recommendations of Mr. William R. Morrish for the reasons he has set forth and for the following additional reasons:

The report as submitted contains some information not readily available elsewhere and therefore such portions should be released as soon as possible. Sections II, III, and IV are reasonably complete and ready for acceptance. On the other hand, Section I dealing with "the extent of ragweed in Oregon, and in particular, any marked increase or spread of such infestation" could be improved. It is true that the extent of ragweed infestation in Oregon is very poorly known, but information available has not been fully utilized, particularly with respect to the "1500 acre" Josephine County infestation, concerning which an important conclusion appears in the majority report. If this infestation is discontinuous and is of many small areas over this fairly large county, the problem is somewhat different than if it is confined to one moderately continuous 1500-acre area. The same problem obtains with respect to the areas infested in the Willamette Valley counties. "Control", future evaluation of the effectiveness of control, and the evaluation of spread in the future, depends upon having as much of such information as is now obtainable.

It should be noted that all statements in Section I relating to extent and spread of ragweed in Western Oregon are opinions based on admittedly insufficient observation. Any conclusions from such data cannot be significant. I personally *think* it may be that ragweed may increase (and spread) in Western Oregon unless effective measures are taken to prevent this. However, the Committee has not investigated nor attempted to investigate the ecological factors which may be pertinent to the growth and spread of ragweed in Western Oregon where ragweed is a non-native transplant into a new environment.

Other portions of the report need more editing, are insufficiently documented and need further study. These parts should be returned to the Committee for additional consideration. Examples of this follow:

- 1) There is no definition of critical terms to help in their proper understanding. We speak of "limited", "heavy", and "moderate" ragweed infestations (p.329 and elsewhere). What may these adjectives mean to various readers in terms either of continuity, extent or density of infestation?

- 2) Ragweed is said to be "already far advanced" in Josephine County (p. 338) and the report fatuously recommends that "control is to be restricted to an area in Oregon where control is feasible" (p. 339) No where is "control" defined. Although this Committee has possibly made the best study on the problems of ragweed control in the state to date, there are no recommendations from it as to what is necessary to achieve "control". "Control" methods required seem to be quite different in farm land areas, in city lot and fence corner infestations; this, too, should be covered in the report. The report designates as the "ragweed control area" the Willamette Valley and counties West of the Cascades, where, except for Josephine County it is "probably controllable without difficulty". For what reason is ragweed control said to be "not feasible" (p. 338) in Josephine County?
- 3) Consideration is not given to the possibility of spread of ragweed from non-"controlled" areas into other areas. The drainage of non-controlled areas and other factors might make this likely.
- 4) The report contains no consideration of the possibility of the eradication of ragweed.
- 5) Ragweed crosses state lines. Recommendations for control in Oregon might properly include some consideration as to whether interstate control measures are advisable and if so, how these can be achieved.
- 6) It is noted on page 336 "that much of Oregon's ragweed is in areas outside municipalities and is not well established; therefore emphasis should be on a speedy unified program." On page 340 it is stated that ragweed "exists primarily on waste and urban lands".

The following recommendations are premature:

1) Recommendation 5(1) (p.340) is that "the State Board of Health should be substituted for the Department of Agriculture as the administering agency". The bill sponsored by the State of Oregon Committee on Natural Resources, and now before the legislature recommends the Department of Agriculture. Our committee has not adequately investigated the advisability of this substitution either from the viewpoint of which Department is better organized to conduct control or which normally employs personnel best qualified to carry out a weed control program, or which can do it most economically. It may be that the Board of Health can better administer ragweed control than the Department of Agriculture. However, since the Committee has little specific data on this problem and has not discussed the proposed bill with officials from either Department, this recommendation is not yet justified.

2) Recommendation No. 3 (p. 339) is that control is to be restricted to an area in Oregon where control is feasible. If control is restricted to an area as defined on Page 337, it is probable that ragweed will continue to increase in adjacent reservoirs of infestation and may spread from these throughout the state. The committee has not fully investigated these potentialities.

*Respectfully,*

FRANK B. QUEEN, M.D.



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## ACKNOWLEDGEMENTS

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- Robert C. Baum, Executive Secretary, Governor's Committee on Natural Resources, State of Oregon, Salem.
- Howard C. Belton, Senator, State of Oregon.
- Harold M. Erickson, M. D., State Health Officer, State of Oregon.
- Dr. Helen Gilkey, Professor Emeritus of Botany, School of Agriculture, Oregon State College.
- Frank McKennon, Chief, Division of Plant Industry, Department of Agriculture, State of Oregon.
- Frank Perlman, M. D., Allergist.
- F. E. Price, Dean, School of Agriculture and Director of Extension Services, Oregon State College.

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