

METHODS OF WEED CONTROL

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Weeds are plants out of place. Weed control in mosquito abatement is based on the principle of first things first.

As a background to this idea of weed control our original idea of this operation was an effort to reduce the weed growth on the edges of the ditches so that a more efficient larval inspection would be possible, and in the event of larval activity, the operators would not be encumbered by the excessive vegetation that continually hinders many of our spray operators.

In practice 2-4-D spray was applied to these ditch banks and the results were very favorable.

As the program expanded to eliminate the water-covering plants (pennywort and water cress) it was noticed that an increased flow in the ditch depressed the larval population to the point where spraying for larvae was occasional rather than routine.

Needless to say, with the combined operation of mechanical and chemical weed programming, the insecticide usage has dropped to a fraction of the former output.

In sensible control, use of weedicide can be a genuine benefit to any district's operation program. This is very evident in the public relations of the district where farmers are saved many dollars of their own. These "dollars" would have been spent for the spray control of agricultural insects that utilize wild vegetation as cover and food.

In the actual spray and treatment program the most important aspects from the operators' standpoint are: (1) What materials are for what job, (2) How safe to use, both for produce and operator safety, and (4) How do the costs compare.

For the first materials classification—broadly they can be arbitrarily grouped as follows: the selectives, the generals and sterilants.

The selectives are specific in function, the final effect is that of an alteration in the hormone balance of the plant, thereby effecting slow death. The most familiar of this group is 2-4-D with its several formulates. It is exceedingly versatile because if used at the recommended dosages its killing effect is confined to the broad leaf, but the strength can be altered to include even cattails and tules in its control range.

2-4-5-T acts much the same but is more effective on woody type cover. Dalapon has reversed this selection with grass the susceptible group and broad leaf's generally unaffected. Amino triazole is a more general herbicide with pronounced leeway in usage.

It should be mentioned here that any use of hormone selectives such as the aforementioned necessitates the filing of an application with the County Agricultural Commissioner's office. He in turn will advise you on regulations governing use of hormone selectives in highly susceptible areas. Cotton, grapes, melons and tomatoes are but several of the economic plants affected by minute quantities of these sprays.

Less risky to use proximal to crops would be the "tissue-burning" weed oils: Dinitro-phenol and fortified

Diesel oils. Some sterilants used in low concentrations are very effective in the "general" weedicide class.

The common complaint with the general weed killer is that in areas where erosion of land or sloughing of ditch banks are problems, general or sterilant usage eliminates the dirt holding grass roots.

The sterilants act in the ground. They enter the root structures and discourage plant growth for periods of time that vary up to four years, but in average rainfall areas one to two years duration may be expected for the recommended application rates. These include the arsenics, borates, chlorates, common salt and combinations of the above. C.M.U. is commonly used by itself or in combination with the ureas of chlorates.

Incidentally, these materials are only a handful of the many effective formulations used commonly throughout the U.S. today.

The safeness of these to the man who has to apply them is of continuous importance. First, it must be borne in mind that as with many insecticides, weedicides also have similar solvents that can cause damage to sensitive tissue (eyes, nose, etc.) if prolonged contact is maintained.

The phenolic compounds and the fortified oils are unpleasant to use because of odor and skin effect, but even in the most potent, the intense toxicity of the organic phosphates is not, to my knowledge, ever reached.

For a summation of weed control, it would be well to look at it not as single approaches but rather as several tools, that when integrated properly give good, positive results. The soil sterilants (which are a bit expensive incidentally) can be utilized to protect bridges, sheds, fuel supply areas and pump houses from damage through later weed burning.

The selectives may be applied for predetermined effects as previously noted. When the total efforts of the spraying have been achieved, the entire debris and residue may be burned off.

This coverage of the weedicide chemicals does not preclude the desirability of tillage, natural elimination (either by plant competition or grazing) or any of the other methods that are possibly available.

The costs of these materials and their application rates and characteristics are available either from the suppliers or from interested agricultural commissioners.

Now I would like to hear some questions.

PUBLIC RELATIONS (Operator Responsibility)

HERBERT B. BROWN

*Division Foreman, Alameda County Mosquito
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Public relations is not a subject that is new to operators or personnel of any mosquito abatement district as it is a part of our every day work.

To define public relations briefly—it is a process of informing the public of district activities and policies.

Each operator or employee of a mosquito abatement district is a public relations representative of his district. It is his responsibility to explain the policies, activities and reasons for activities to the people he meets in his daily rounds. In many instances we are the only

contact residents of the area have with the district and it is by our actions that the district is judged.

Building casual acquaintances into friends often revolves around an ability to talk to people on a friendly basis and with some regard for their needs and interests. In turn, these people as a result of this personal contact will often take corrective measures to eliminate their mosquito-breeding courses. Friendliness is just another form of public relations. To mention an example or two of what we feel are very good public relations, we furnish some of the schools in the area with mosquito fish for their fund raising carnivals. We ask them to distribute mosquito control pamphlets and to try to get as many fish as possible in fish ponds, tanks, troughs, etc., where they will do us the most good. We both benefit by this activity.

The pickle processing industry seems to like the southern part of Alameda County, as we have several in the area. The tanks used for processing are a real problem to control. In co-operation with the management and workers we have worked out a system for control whereby we only make an inspection about once a month. Also at the same place we use their tanks for winter storage of fish. We stock heavily in the fall and they feed and maintain proper water supply through the winter so that we have an available supply of fish in the early spring when fish are hard to obtain from normal sources.

The words you use are tools to persuade people to act or to get an idea over. Haven't you talked to Mrs. Brown about her leaking water faucet or pond lilies or lazy goldfish until you could inject an idea or suggestion that would help to control mosquitoes more effectively and still not require repetition of work?

Public relations covers a very large field of activity—inter-agency, person-to-person, industrial, farm, house-to-house, and many others. Each one of us contributes to a public relations program each and every day.

COORDINATION OF AERIAL CHEMICAL CONTROL WITH GROUND OPERATIONS

BURTON FENTEM

*Chief Pilot, Merced County Mosquito
Abatement District*

We have found that with the amount of problem area and the limited budget that we must operate under, the only way that we can have mosquito control is through the operation of district owned aircraft.

Without coordination between operators and pilots a good job of control would not be possible. There are many factors involved in having a good coordination program. First of all this starts with the foreman. It is his responsibility to see that his operators are trained properly and to help them with any problem that they may have. I feel that a well trained operator is a very important man to the district. In the Merced district

we have nine operators. The district is divided into nine zones, and an operator is responsible for one zone which is approximately 150 square miles. You can see by the size of the area that he must organize everything that he does to avoid neglecting any part of his territory.

How does the operator tie in with the airspray program? Without the operator we wouldn't have an airspray program. We know that the cheapest way for mosquito control is by airplane, however, even though the cost of application by truck is much greater, we must have the combination of truck and plane to do the job.

I would like to give to you briefly an idea of what the operator and pilot jobs consist of and how it becomes an organized team. First of all it starts with the operator. He makes his inspection and determines whether this particular source is to be airsprayed or not. If it is to be airsprayed he must fill out an airspray request form. On this form he gives pertinent information to the pilot such as the date, the name and location of the property owner, the approximate area to be treated, the larvae infestation and stages, etc. If these requests are filled out properly the pilot can determine how to schedule his work and also the type of insecticide he is to use. After the operator has completed his daily work he returns to his depot and turns his request form over to the pilot. With this information that the operator has given the pilot he can plan his work for the next day. Each pilot is responsible for approximately 500 square miles, so he must work with more than one operator. Each plane has its home base which is geographically located within the district. By having the planes and pilots stationed throughout the district eliminates much ferry time and unnecessary costs. In addition to this we have two other air strips that are equipped with loading facilities. By having fine airstrips strategically located we eliminate a lot of costly time and backtracking. At each of the five locations we have operators that use these as their home depot.

During the spray season the district has six two-way radios in operation. We have found that these radios more than pay for rent and certainly is responsible for considerable savings of time and costs to the taxpayers. At each of these five depots located within the county we have wind gauges. We have found out through experience that we can successfully spray in winds up to 12 and 15 miles per hour. These are inexpensive instruments and have saved us many trips; by this I mean, if we are working in a certain area and finish up and are ready to move into the next operation zone we either call him by radio or he calls us and tells us the current condition. If the wind is blowing too strong in his area we can contact other sections of the district that may have no wind and need help. We sometimes have all of our planes working in one area. We have found that by giving an operator a ride over his territory by plane it can be covered in 30 minutes or so, which will save the operator as high as one day of his time looking for the sources.

I believe that this covers briefly our present operation in Merced County. Without coordination between air and ground personnel you can't expect a good job of mosquito control.