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THE CONTROL OF GRASSES WITH CHEMICALS

By G. R. W. MEADLY, M.Sc., Officer in Charge, Weeds and Seeds Branch

Grasses are among man's greatest assets and usually he tries to encourage their growth. The cereals, rice and many other grasses supply him with basic items of food and they are also important components of pastures which provide grazing for sheep and cattle.

There are occasions, however, when undesirable species cause concern, or even species which are normally desirable become troublesome by growing out of place.

With most weed problems, cultivation is the first line of attack, and this applies in the case of grasses. There are many conditions, however, when cultural methods are not practicable and chemicals can be used to advantage. We sometimes read about "chemical farming" in countries such as New Zealand, where chemicals are used to alter the composition of pastures, particularly to reduce the content of grasses. This technique has not been employed to any extent in Western Australia but chemicals are helping to control grass weeds in a number of ways.

In Orchards

In orchards and vineyards, weeds generally can be handled between the rows of trees by ploughing or rotary hoeing, but these operations leave a small square around each tree. The removal of perennial grasses such as couch and kikuyu from these squares by hand digging is a tedious and recurring job. Fortunately, a chemical developed in recent years has come to our assistance. It is known under a variety of trade names including Dalapon, Dowpon, Graypon and Terrapon. Unlike T.C.A. (sodium trichloracetate), it is relatively safe to use in the vicinity of vines and orchard trees.

Dalapon should be sprayed onto the foliage, as it is absorbed through the leaves rather than the roots. The usual rate of application for perennial grasses, such as couch in orchards, is ten pounds an acre actually sprayed. For best results this should be followed by a similar treatment two or three weeks later.

Providing the trees are healthy and not less than three years old, there is little risk of causing injury, although care should be taken to prevent the spray from drifting onto the foliage. Dalapon acts slowly and maximum effects may not become apparent for several weeks.

Irrigation Channels

Several chemicals are being used, particularly in Europe, for the control of wild oats in cereals. The treatment is relatively
costly, however, and so far chemicals have not been used in Western Australia against grasses growing with cereals.

Dalapon, T.C.A., and C.M.U., one of the urea derivatives, have a place in suppressing the growth of grasses along irrigation channels and, together with contact herbicides including sodium chlorate, borates and diquot, are applied around farm buildings. Under some circumstances they can be used to advantage for reducing the fire hazard. The contact herbicides cause a more rapid drying effect than Dalapon, T.C.A. and C.M.U. and are capable of killing annual grasses, but are less effective against perennial species.

Weeds, including annual grasses, growing in onions have been controlled with chloro I.P.C. There is a relatively fine distinction, however, between satisfactory weed control and damage to the crop, calling for considerable care in use.

Crab Grass

At this time of the year most home gardeners are viewing with concern the appearance of crab grass, both in garden beds and lawns. A vigorous, well covered lawn is one of the best safeguards against excessive invasion by this aggressive summer weed and autumn applications of fertiliser pay dividends by stimulating early growth of the sward grasses.

Many chemicals, including arsenicals, potassium cyanate and phenyl mercury acetate, have been tried with partial success, but the selective removal of a grass from a grass is not a simple assignment. The most satisfactory material so far tried is D.S.M.A., an abbreviation for disodium methyl arsenate. This is available under a number of different trade names and should be applied when the crab grass plants are still small. Several applications may be required during the summer to cope with a succession of germinations.

With all weed problems, first consideration should be given to cultural methods, but chemicals can also play their part in the conflict with undesirable grasses.

POST DIPPING LAMENESS IN SHEEP

By I. J. MILLER, B.V.Sc., Veterinary Officer

LAMENESS can be a most distressing feature at any time of the year, but when it coincides with the early onset of hot weather and fall-off in nutritive level of the feed, results may have a far reaching effect on the flock.

Survival through the summer largely depends on the sheep holding their condition for as long as possible. Nothing is more detrimental to this than the immobility associated with lameness. Not only does it affect ability to seek food and water, but infection has toxic side effects on appetite and general well-being.

This applies mainly to weaners, which are more susceptible to ill thrift than are older sheep; younger animals are also more likely to pick up infections at dipping.

Among the commonest of the diseases which cause lameness in sheep are arthritic infections of the joints, associated with lamb marking and other operations involving a break in the skin.

Erysipelas infection after dipping is an important aspect of this. The erysipelas organism is probably better known as causing swine erysipelas in pigs.

The fact that most routine dipping is carried out off-shears provides entry for bacteria through superficial cuts and injuries which occur at that time. This is so even after such cuts have apparently healed. The erysipelas bacteria live and multiply in non bactericidal dips which have been left standing for some time after being contaminated.
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**Symptoms:**

The first sign of infection is usually seen three to four days after dipping has been completed, with affected sheep showing lameness in one or more legs, disinclination to move and progressive loss of condition. The region most commonly involved is the lower shank, downwards to the coronet and heels. The skin may show some reddening and swelling of the area and is usually hot and tender to the touch. The duration of the inflammatory period and lameness varies from 10 to 14 days, but in some cases more seriously affected animals may still show symptoms at four to six weeks. Other sheep, although exhibiting no observable lameness, may suffer a period of poor appetite associated with a brief rise in temperature.

Post dipping infections are rarely fatal, although the temporary set-back and loss of condition may prove costly as the summer progresses.

The sheep most likely to be involved are those put through late, after the fouled up dip has been allowed to stand for from 12 to 24 hours.

**Control:**

The erysipelas organism is sensitive to penicillin, and the injection of this antibiotic should be effective against the infection; however, many cases are too far advanced when recognised, for treatment to be of much value.

The accepted form of control is to incorporate a small amount of copper sulphate in the dipping fluid, to inhibit bacterial growth. From 2½ to 3 lb. of bluestone dissolved in one gallon of water and added to the dip at the rate of two pints a 100 gallons is sufficient for preventive purposes.

The recent trend towards shower dipping should also reduce the incidence of post-dipping lameness, although, if the reservoir is allowed to stand for any length of time, this too could become a source of infection.

Where arsenical dips are used, some confusion could arise between a post-dipping infection and arsenical scald. They can be distinguished because arsenical scald invariably has a wider area of effect, with general reddening of the body surfaces, and in most cases is accompanied by other signs of arsenical poisoning.

## LAMBING PROBLEMS IN SUMMER RAINFALL AREAS

By H. SUIJDENDORP, B.Sc. (Agric.), North-West Regional Adviser

Low lambing percentages have become a serious problem in the summer rainfall areas in the North-West of Western Australia. Largely as a result of poor nutrition of the lambing ewes, lamb marking figures have fallen to the stage where keeping up stock numbers is extremely difficult.

Lambing performance in the summer rainfall areas involves a completely different set of conditions to those of the rest of the State. The seasonal conditions, which in turn determine the nutritional value of the natural grazing, exert a strong influence on the breeding performance of the ewe. It is therefore necessary to try to time mating to fit in with seasonal conditions if the ewe is to have her best chance of producing a healthy lamb.

In Western Australia the area of predominantly summer rainfall is roughly confined to north of the Hammersley Ranges. The average wet season breaks some time in January, although there may be local storms, especially inland, as early as November.

The growing season extends into March-April and may be prolonged for several months by small amounts of winter rain. Depending on the season, reasonable quality ground feed will be available up to April-May.

In most seasons, even perennial native grasses lose most of their feeding value when they dry off at the end of the rainy season. If protein-rich topfeed is present, this prolongs the period during which high quality fodder is available, but where topfeed is absent or has been over-grazed so that it is out of reach for grazing animals,
the period of adequate nutrition is quite limited.

To satisfy the nutritional requirements of the ewe, it is therefore necessary to time the lamb drop to fit in with the short period of adequate nutrition for ewes and lambs.

This was shown very clearly by a lambing trial at our research station about 100 miles inland from Port Hedland. Last summer the wet season was very short, and useful rain was spread over only about six weeks, ending in early March. Consequently, even in May feed was drying off.

As a result, lamb mortality after birth was high but was lower for the April-May drop (27 per cent.) than for the June-July drop (36 per cent.). Daily weight gains showed tremendous differences with 0.42 lb. per day for the early drop and 0.24 lb. per day for the late one.

Poor nutrition in the early life of the lamb affects future wool production, so a two month variation in time of lambing may have far reaching effects.

How does all this fit into normal station management?

A November mating would fit in with a summer deferment of the better class country. This means that during the early part of the wet, sheep are kept on hard vegetation, and are returned to the better

vegetation about six weeks later. These plants have then had a chance to get established and set seed before being subjected to grazing. This will improve the plane of nutrition during a period of very high requirement and give the animals a better chance.

Reasonably good conceptions can therefore be expected from November mating, while earlier mating dates are a bit doubtful. Later mating is likely to produce lambs at a time when the plane of nutrition is declining, often with disastrous results.

Fitting in a shearing date may be more of a problem.

Usually shearing teams start the season in April in Kimberley, then move south and usually disband in July when shearing is in full swing in the farming areas. This makes May-June the most popular time for shearing in the region under discussion.

Obviously this clashes with the best time for lambing from every other point of view. Now that lambing percentages are so low that breeding up after the ravages of cyclone and flood is virtually impossible, some adjustment in the seasonal timetable will have to be made, to make sure that the best use is made of the native vegetation still available for grazing.

FLY CONTROL ON COMMERCIAL POULTRY FARMS

By P. SMETANA, B.Sc. (Agric.), Acting Officer in Charge, Poultry Branch

POULTRY attract flies, and unless they are managed correctly, poultry runs can become dangerous breeding grounds for these pests.

Backyard poultry units are the major cause of complaints concerning flies, probably due to the fact that they are in more heavily populated areas. Conditions in backyard units and commercial farms are often quite different, and this article deals with aspects of fly control on the larger poultry farms.

The common housefly is well known in the adult winged form. A single fly may lay from five to 20 batches of eggs, each batch containing 75 to 150 eggs. These take from eight to 24 hours to hatch into small white maggots which develop into the pupal stage. The time interval between successive generations is about three weeks.

The lesser housefly can also become a pest on poultry farms. This fly is smaller and lighter in colour than the ordinary housefly, and has a characteristic hovering motion in flight. It has a brown, hairy maggot which is more difficult to detect than that of the common housefly, so that rapid breeding often takes place without being noticed. Also it prefers cool conditions and is most prevalent in winter and
spring, while the common housefly is more of a problem during warmer weather.

Sanitation

Proper sanitation is the most important aspect of fly control, and this is particularly important on poultry farms where there are many opportunities for large scale fly breeding under careless management conditions.

Although the harmful effects of flies to the birds themselves are not great the danger to human health is very real and most poultry farmers fully appreciate this fact. As a result, satisfactory sanitation programmes are in force on most farms but it is as well to check the following points to ensure that fly breeding is completely eliminated.

Moist poultry manure is one of the best breeding grounds for flies. Most modern poultry farms operate under the deep litter system and as long as the litter is kept dry and within the confines of the shed housing the birds, there is little opportunity for fly breeding. Any type of litter is a potential breeding ground, irrespective of age, when it becomes damp.

Fly breeding usually takes place on litter once it is removed from the presence of birds, which act as a type of biological control. Most breeding on commercial farms occurs where manure is used to fertilise the greenfeed plot. The use of sprinklers increases the danger by keeping the manure moist. Where litter or droppings are applied to greenfeed they should be spread sparingly and well watered in immediately after application.

Another common cause of breeding is the escape of litter, even in small amounts, outside the shed, where the birds cannot reach it. Birds often scratch some litter outside the shed, and once this becomes damp it is an ideal breeding ground. Provision should be made to prevent litter from escaping from the poultry shed.

Fly breeding is more likely to be a problem under semi-intensive conditions or cage units than in the large intensive deep litter unit. Feed wastage from external feeders, particularly in winter, can easily result in breeding. Attention should also be given to external watering devices to ensure that spillage is reduced to a minimum.

A deplorable practice which can have disastrous affects from a general disease point of view as well as adding to the fly problem is the inadequate disposal of the carcasses of dead birds. In some cases these are left lying in the poultry run, or thrown outside the yard and left there to rot. All dead birds should be carefully disposed of immediately.

Careful management is necessary in cage units to overcome the fly problem. The important factor is to avoid breeding in the droppings underneath the cages, which means that rapid drying must take place. Protection against dampness both from rain and spillage from water troughs is essential.

The cages should be set up in such a manner that the droppings build up into a dry cone structure. Under normal conditions this will prevent fly breeding but at times it may be necessary to apply an insecticide. Overseas poultry farmers report success with the weekly dusting of the droppings with gypsum.

Insecticidal Treatment

Even under the best of housing conditions, where no fly breeding is allowed, a certain concentration of flies will be present on poultry farms.

Most farmers combine a policy of sanitation with some form of insecticidal treatment in order to keep fly numbers down to a minimum. A number of modern insecticides have proved very effective in the control of the common housefly; those most commonly used in Western Australia include Dipterex, Diazinon, Malathion, Dieldrin, Baytex, Rogor, DDT and Lindane.

Caution should be used when applying these insecticides near the birds, as they may have harmful effects. This is particularly important in the case of Baytex, Dieldrin and Diazinon.

Whenever spraying is carried out inside the shed, direct contact with the birds' feed or water should be avoided.

Inside the poultry shed it is not possible to use baits, and the use of residual sprays on the walls and floors is necessary. It has been found that all insecticides have a longer residual action when applied with sugar. The residual period is greatly reduced in sunny, exposed positions.
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