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Fly Control on California Cattle

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Cattle pests, such as flies, cost cattlemen both in treatment expenditures and in lost production, due to irritation of the pests and diseases they cause or transmit. In a survey of California cattlemen, face flies were rated as the worst pest, followed by horn flies and stable flies.

Face flies, in addition to producing eye irritation due to their feeding, serve as mechanical carriers of the causative agent of pinkeye in cattle (infectious bovine keratoconjunctivitis [IBK] caused by the bacterium *Moraxella bovis*). This condition consistently ranks as one of the top five most costly diseases in California beef cattle. Feeding by horn flies, stable flies, horse flies, and other bloodsucking flies mechanically transmits several disease organisms as well as causing irritation and physiological changes that decrease weight gains.

Face flies and horn flies may develop resistance to insecticides over time. To slow this resistance development and maintain effective fly control, it is advisable to change the pesticide class used on a herd every other year. If you used an organophosphate eartag last year, use a pyrethroid eartag this year. Additionally, if you plan to use a pyrethroid eartag this year, use an organophosphate spray this year. Alternating classes of insecticides in this manner will increase the success of your preventive program.

It is also recommended that early season fly populations be knocked down with sprays or dusts. Sprays, back rubbers, face rubbers and dust bags can be helpful in reducing fly populations early in the season, before eartag application. Then, as the

fly populations increase, apply the fresh eartags to achieve maximum benefit. Always follow the manufacturer's label directions for eartag application; if they call for two eartags, use two eartags! Always remove eartags at the end of the fly season, once populations begin to decrease in the fall. If eartags are left in the cattle, the flies that overwinter – particularly the face flies that persist over the winter – will develop resistance to the insecticide you used and it will no longer be effective.

Face flies and horn flies lay their eggs in cow manure and the larvae develop only in cow manure. Therefore, the compounds that are fed or given in bolus form to kill fly larvae in the manure pat can be very effective in reducing local fly production. Examples include the slow release bolus with diflubenzuron (Vigilante®). This compound is an insect growth regulator (IGR) which is safe and cross-resistance does not develop. Another IGR that is used in “feed through” products is methoprene. Other products are available that can kill fly larvae in the manure when used as a feed through.

Some important items to keep in mind for fly control and pesticide use are:

1. Plan ahead for insecticide and eartag purchases; fly season always comes, even if delayed by cool weather or rain.
2. Consult with your veterinarian regarding active ingredient(s) in these products and their record of effectiveness in your area.
3. Always follow instructions, warnings, and precautions: these products can be toxic to you, your children, pets, and others working with them around the chute.
4. Follow label withdrawal times and keep records of treatment dates, products and lot numbers.

REGISTERED PESTICIDES FOR CATTLE: 2001

EAR TAGS

<u>Product Name</u>	<u>Active Ingredient</u>	<u>Chemical Class</u>	<u>Manufacturer</u>
Atroban Extra	Permethrin	Pyrethroid	Schering-Plough
BovaGard	Diazinon	Organophosphate	Y-TEX
Cutter Blue	Fenthion	Organophosphate	Bayer
Cutter Gold	Cyfluthrin	Pyrethroid	Bayer
Diaphos R _x	Diazinon + Chlorpyrifos	Organophosphate	Y-TEX
GardStar Plus	Permethrin	Pyrethroid	Y-TEX
New Z Diazinon	Diazinon	Organophosphate	Farnam
Optimizer	Diazinon	Organophosphate	Y-TEX
Patriot	Diazinon	Organophosphate	Fermenta
Python	Zeta-cypermethrin	Pyrethroid	Y-TEX
Warrior	Diazinon + Chlorpyrifos	Organophosphate	Y-TEX
X-Terminator	Diazinon	Organophosphate	Destron-Fearing
ZetaGard	Zeta-cypermethrin	Pyrethroid	Y-TEX

SPRAYS

<u>Product Name</u>	<u>Brand Names</u>
Dichlorvos	Vapona
Permethrin	Ectiban, Permethrin, Atroban, Permethrin, Insectrin
Tetrachlorvinphos	Rabon
Tetrachlorvinphos-Dichlorvos	Ravap

POUR-ON APPLICATIONS

<u>Product Name</u>	<u>Brand Names</u>
Permethrin	DeLice, Expar, Hard Hitter

BACK RUBBERS AND FACE RUBBERS

<u>Product Name</u>	<u>Brand Names</u>
Permethrin	Ectiban, Insectrin
Tetrachlorvinphos-Dichlorvos	Ravap

DUST BAGS

<u>Product Name</u>	<u>Brand Names</u>
Tetrachlorvinphos	Rabon dust

FEED-THROUGH INSECTICIDES

<u>Product Name</u>	<u>Brand Names</u>
Tetrachlorvinphos	Rabon oral larvicide
Methoprene	IGR Mineral, Starbar

SLOW RELEASE BOLUS WITH IGR (Insect Growth Regulator)

<u>Product Name</u>	<u>Brand Names</u>
Diflubenzuron	Vigilante

(NOTE: Active ingredients are available under a number of brand names and those listed are examples only and not specific endorsements or recommendations. ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS.)

Sources: Nancy C. Hinkle, Ph.D., Extension Veterinary Entomologist, Department of Entomology, UC Riverside John Maas, D.V.M., Extension Veterinarian, School of Veterinary Medicine, UC Davis

Livestock Management During Drought

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Drought years create a severe hardship for the livestock industry. Lowered forage production results in a residual dry matter well below the minimum recommended threshold levels. Residual dry matter is the dry plant material remaining from the previous year's growth that provides favorable micro-environments for early seedling growth, soil protection, soil organic matter, and a source of low quality fall forage for livestock (Clawson, McDougald, and Duncan, 1982).

Low residual dry matter levels resulting from continuous drought can create a situation similar to that following a wildfire. Besides reducing the current year's forage, a wildfire reduces the forage production in the following season and shortens the length of adequate green forage period. Stocking rates thus need to be reduced. In the growing season following a fire, forage production will be reduced by 30 to 50 percent and species composition will shift primarily to forbs. In the second growing season, forage production will still be about 20 percent less than on unburned sites. Only in the third growing season after a wildfire, will forage production resemble that of unburned sites (McDougald, Frost, and Clawson, 1991).

Sound rangeland and livestock management strategies can help the livestock producer endure the drought. As no specific management program can be applied in all situations, each recommendation should be carefully evaluated in terms of cost in relation to expected return. Each livestock operation must evaluate its management options and select those best suited to its specific situation. The following is a series of range and livestock management recommendations that may be considered.

Range Management Recommendations

Move cattle to pastures with scattered blue oak to make more forage available to grazing livestock.

Generally in California, for areas of 20 inches of rainfall or less, early season forage production and total forage production are greater beneath the canopies of blue oak than in adjacent open areas.

Visually evaluate the available forage remaining in each pasture. Map these areas into categories of high, moderate, and low forage following the guidelines for residual dry matter (Clawson et al., 1982; Frost et al., 1988). Use these maps to locate supplemental feeding areas and/or use electric fencing to improve livestock distribution so existing forage or residual dry matter will be used efficiently.

Use nitrogen fertilization if and when rains occur. Nitrogen results in a quick forage response and increases the quantity of protein in the forage. For best results, nitrogen should be applied to open rolling sites. The benefit of fertilization may be limited in areas of less than 12 inches average rainfall.

Poisonous plants become a bigger problem during drought. Locate all areas with poisonous plants and monitor them closely or exclude cattle from them if possible. Hungry animals will eat poisonous plants they normally would not consume.

Utilize pastures with predominantly south and west aspect early in the grazing season. The forage on these areas will mature and dry earlier than the forage on north and east exposures. This grazing strategy will lengthen the period in which adequate amounts of green forage are available.

Swales, due to their deeper, more fertile and better water holding soils, are the highest forage producing sites on annual rangeland. However, during the winter season, cold air can settle into the low areas, restricting plant growth. By utilizing temporary fencing around large swales and restricting their use until temperatures are warm, the plants will be given a photosynthetic advantage enabling them to produce nearer to their potential. Since plants on these areas are the last to mature and dry, delaying their use may further extend the period in which large amounts of high quality green forage are available.

Providing high quality and accessible water to livestock is extremely important under drought conditions. Consider developing all possible sources of water. This includes developing springs and seeps, installing water tanks, building ponds or reservoirs, and drilling wells. Hauling water short distances to permit livestock to harvest the feed from certain areas may be necessary in some cases. This should be used as a last resort as it is costly, time-consuming, and should be considered only as a temporary solution.

Supplemental Feeding Recommendations

Supplemental feeding is normally practiced to maintain herd performance in reproductive rates and weaning weights. During drought, additional supplemental feed is provided to replace lost forage production. Supplemental feeds provide additional protein and energy to livestock. Common protein-rich supplements include cottonseed, soybean, linseed, and safflower oil meals or products containing these feeds. Well-cured green leafy alfalfa hays cut in the early bloom stage are also high in protein. These high quality hays will provide adequate protein for all classes of livestock when fed in adequate amounts.

Common high energy feeds include the grains such as barley, corn, milo, and wheat. Molasses is an excellent energy source and, in addition, acts as a binder to keep down dust in ground and pelleted feed mixes. It is also used to increase palatability of feed mixes.

Liquid supplements can be formulated to provide either protein or energy. These liquids are commonly used when adequate amounts of low quality dry forage are available. Under drought conditions, where replacement for forage is required, these supplement forms are not recommended unless they are provided along with low quality roughages. Liquid supplements should not be considered if it takes more than two pounds per cow per day to maintain desired livestock performance.

If animals are exposed to severe drought conditions for some time, their maintenance requirement

will decrease and a lower feed level will be adequate. Gradual reduction of feed levels is important as it will allow animals to adjust to the lower level with little pronounced effect. However, weak animals should not be allowed to decline in condition and become weaker, as greater quantities of feed are then required to bring them back to good condition. Animals losing 15% to 25% of normal body weight are weak and will recover slowly (Young and Scrimshaw, 1971). Animals losing 30% or more of normal body weight will nearly always die (de Calesta et al., 1975).

Feeding the standard daily requirements every other day is more effective than daily feeding of reduced amounts. These less frequent, larger feedings allow the weaker animals, as well as the stronger animals, to get their fill. This will also save on labor costs.

During normal feeding conditions, animals deposit some of the essential minerals in their bones. During short deficiency periods, these minerals can be depleted. Under most dry feed conditions, cattle should receive a calcium and phosphorous supplement. During prolonged drought, it is even more important that cattle receive these two minerals. This is particularly important for young growing animals, pregnant females, and lactating heifers and cows. Vitamin A is critical during drought. Dry feed contains very little vitamin A. Vitamin A can be provided by having some green hay in the ration or by adding a stable form of vitamin A to the feed mix. Another option is vitamin A by injection. Fortunately, animals that have been on green pasture for some time usually will not experience vitamin A deficiency for four to six months when placed on a vitamin A deficient ration.

During drought conditions, cattle may be fed a variety of other feeds. Low-quality roughages such as cereal, straw, milo or corn stover, and cottonseed hulls are good roughage sources. Poultry manure and litter are sources of nitrogen.

When feeding the animals, reduce the distance the animals must travel as much as possible. Walking in search of feed and water can use up as much as

30 percent of the energy derived from feed. This should be balanced against the need to utilize existing range forage efficiently.

Extremely cold weather can also increase energy requirements. Under these conditions, roughages, such as hay and straw, should be fed as animals will produce more body heat on these feeds than on concentrated feeds, such as barley or corn.

Try not to buy weed infested hay. If weedy hay must be fed, avoid areas with late spring moisture such as swales, seeps, springs and streams. These late season wet areas increase the risk of weed establishment. Monitor feeding sites for treating weed infestations.

Livestock Management Recommendations

Formulate a selling policy to deal with classes of animals to sell and the rate at which they should be placed on the market. Pregnancy check all heifers and cows, cull those that are open, saving the most desirable and younger cows. Carrying these animals on minimal rations will enable you to save valuable breeding stock and replenish the herd after the drought has broken.

Wean calves as soon as possible. This is important because it will allow heifers and cows to stay in better body condition. Weaning ages can be classified into three groups.

- ◆ Six months or older
- ◆ Three to five months
- ◆ Six weeks to three months

Calves weaned at six months or older perform well on high quality roughage. Calves three to five months can be raised on good quality hay and grain. Calves six weeks to three months require diets higher in grains and a higher quality of hay, but do not hesitate to wean calves, regardless of age, to reduce stress on the cows.

Group the herd according to nutritional needs. This will allow for proper feeding of each group and

provide an easier means of assessing livestock condition. The following is an order of priority.

- ◆ Calves under three months
- ◆ Lactating heifers
- ◆ Calves three to six months
- ◆ Lactating cows
- ◆ Heifers or cows in the last trimester of pregnancy
- ◆ Calves 6 to 12 months of age
- ◆ Calves 12 months or older
- ◆ Heifers or cows in early and mid-pregnancy
- ◆ Bulls

Groups low on the priority list can stand longer periods of nutritional stress. These animals should be given lower priority in the feeding program. Those animals most likely to die during drought conditions are young calves and pregnant or lactating heifers and cows. These classes of animals should receive the highest priority and be fed the best feed. Bulls should remain in fair condition except prior to the breeding season when they need to be in good condition.

Observe all classes of livestock for symptoms of internal and external parasites. Parasites are a more serious problem on cattle under stress than under normal conditions. A good parasite control program will be even more important during drought. But, be sure your cattle have internal parasites before treating, as deworming is expensive in both labor and materials.

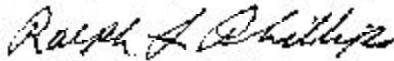
Assistance Available

The USDA Livestock Assistance Program is initiated locally through the Executive Director of the Farm Services Agency (FSA) when a substantial loss (greater than 40 percent) of livestock feed occurs. In addition, the President or Secretary of Agriculture must designate the county for disaster assistance. The program provides cost sharing for the purchase of supplemental feed. Information regarding this program is available by contacting your local FSA office.

When formulating a program to deal with drought which is appropriate for an individual operation, assistance is available from range and livestock professionals at the University of California Cooperative Extension.

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