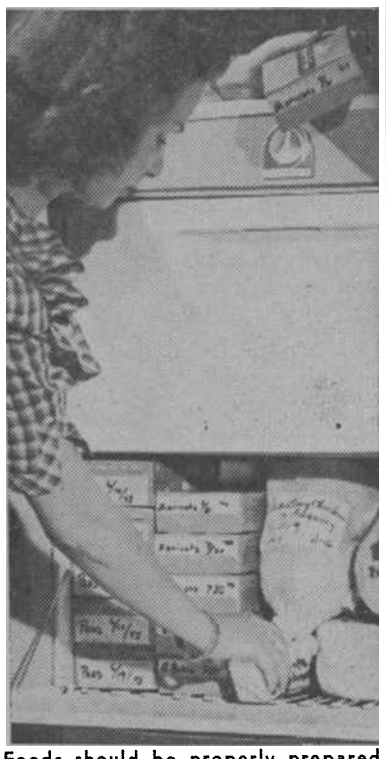
Frozen Food Storage Units Not Always Adequate for Best Results in Home Quick Freezing

Lenora A. Hohl

The increasing popularity of frozen foods, and the greater postwar availability of freezing storage cabinets for the farm and home, have brought about a need for a clearer understanding of the uses and limitations of home freezers.

Four Uses

Freezing cabinets and farm freezers are used in four ways: (1) For storage of commercially frozen food, (2) To hold products frozen in locker plants, (3) To freeze and store farm products for home use, and (4) To freeze and store farm products.



Foods should be properly prepared, packaged, and stowed in freezer to obtain best results.

If only the first two uses are of interest to the prospective owner, a small freezer of four cubic feet or larger capacity, depending upon the needs of the family, is satisfactory.

If no freezing space as such is provided, these units may be used for freezing only very small quantities of food products and then by placing these in small containers against the cabinet side walls.

If a user of one of these units decides that he would like to freeze larger quantities of food than a few pounds, it would be more advantageous to have the food frozen at a commercial locker plant.

If the user knows from the start that he will want to freeze more than small amounts of left-overs or home produce in his own box, he must estimate what quantity he expects to freeze and then purchase a larger unit with suitable freezing capacity guaranteed.

Freezing Temperatures

Most modern home refrigerators are equipped with freezing compartments. In the usual type of freezing compartment which is not insulated separately, the temperatures do not generally go below 15° F., since the remainder of the space in the unit may not go below 30° F. for ordinary storage purposes.

To maintain storage temperatures from 0 to 10° F. with volumes greater than one cubic foot, it is necessary to separate completely and to insulate the freezer compartment from the fresh food compartments.

Limitations of Home Units

One of the most frequent questions about home freezing and storage units is, "Why can we not freeze a full load of produce in our unit?"

The answer is simply that the laws of physics do not allow heat to be extracted from a large mass of food in a small volume of refrigerated air within the time that is required to accomplish a satisfactory result.

Quick Freezing Superior

During the past fifteen years of rapid development of the frozen food industry, much has been written from which the general conclusion has been that quick freezing is superior to slow freezing, chiefly because (1) the ice crystals are much smaller in quick frozen foods, and therefore cause less damage to the cells; (2) less time is allowed for the diffusion of salts and the separation of water in the form of ice; and (3) the product is quickly cooled below the temperature at which bacteria, molds and yeasts may grow.

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Effect of Lygus Bug Injury on The Growth of Alfalfa Subject of Laboratory and Field Study

L. R. Jeppson

The yield per acre of alfalfa seed is largely dependent upon the condition of the plant during blossoming.

Failure of pollination, unfavorable moisture relationships, adverse temperatures, and relative humidity are all contributing factors in the reduction of alfalfa seed yields. Even when conditions appear favorable, a heavy flower drop often occurs.

In 1932 and 1939, experimental studies showed that bugs belonging to the genus **Lygus** were an important factor in causing flower drop and shriveled alfalfa seed.

Since that time, these bugs have also been found to reduce the production of beans, sugar beet seed, cotton and guayule, and to cause the shedding of flowers of many ornamental plants.

Damage Effected by the Feeding Lygus Bug

It has been observed that lygus bugs feed not only upon the reproductive parts, but also upon the growing parts of alfalfa plants. In 1938 studies were initiated by the author and Dr. G. F. MacLeod, then of the Experiment Station staff, to determine the effects of these bugs on alfalfa grown for hay.

As a result of these studies it was found that the lygus bugs feed largely on the growing regions of the alfalfa stem, namely, on the terminal and lateral buds. Sections through these areas, made for microscopic study, showed that feeding of lygus bugs results in relatively large areas of cell disintegration and, in many cases, in the entire destruction of the growing region.

Lateral buds, which are potential growing regions in alfalfa, may also be used as a source of food and thus be injured. Injuries to growing regions often result in the failure of the alfalfa plant to develop stems. When stalks are produced, they may be dwarfed and irregular.

Young developing leaves pierced by the insects' mouth-parts as they attack the main growing regions are so injured that they become crinkled and malformed.

Findings of Investigations

The results of studies on the influence of feeding of lygus bugs upon individual plants indicated that the reduction of alfalfa top growth was dependent on the number of bugs in relation to the number of potential growing regions of the plant.

One insect feeding on a small plant from which the tops had recently been harvested was sometimes sufficient to destroy the young growth as soon as it started, and the plants failed to develop normal stalks.

Large plants that were five to eight inches high before the bugs were permitted to feed were not measurably affected by the feeding of four to eight bugs. Under these conditions, the lateral buds developed; this resulted in more but shorter stalks, the actual weight of the tops not materially reduced.

In the field, lygus bugs do not usually appear in large numbers until an alfalfa stand is fairly well established. After the alfalfa is cut, the environmental conditions in a field are generally not favorable for the bugs until the alfalfa reaches a height of three to five inches.

L. R. Jeppson is Junior Entomologist in the Experiment Station, Riverside.

Effects of High Temperatures On Cattle Under Study

N. R. Ittner

There is an opinion in the Imperial Valley that the decided drop in milk production occurring in July and August is caused by increased humidity.

Data collected in the Imperial Valley, April to November, 1946, by a resident animal husbandman stationed at Meloland, produced a climatic record showing that night temperature and the humidity rose simultaneously and coincided with the first precipitous drop in milk production.

From this data it can be tentatively concluded that the rise in night temperature, to above the critical temperature of the cattle, was the primary and direct factor causing body temperature to rise above normal, with consequent reduction of food intake and decrease in production.

General Background

European breeds of cattle were developed and improved under climatic conditions which generally were characterized by summer temperature averaging about 65° F. and winter temperature about 35° F. Animals commonly thrive best under conditions similar to those in which they were developed. A mean monthly temperature of about 75° F. is considered the upper limit which does not cause significant heat depression in temperate zone cattle.

In the Imperial Valley, mean monthly temperatures are above 75° F. for about six months of the year; exceed 85° F. for nearly four months and reach 90° F. for two months.

It has been found that respiration rate of cattle approximately doubles for each 18° F. increase in air temperature and that humidity below 80 per cent is a minor factor. Also it has been found that for full-fed producing cows the upper critical temperature is about 80° F. for Holsteins and 85° F. for Jerseys. The critical temperature may be defined as the highest that the cows can stand continuously without body temperature increasing.

Dairy Cattle in the Valley

The data collected in the 1946 series of observations indicate that dry cows suffer less than lactating cows during the hot months.

On the basis of this limited data, high producing cows tend to have higher body temperatures and respiration rates than low producers. On the other hand, there are reasons to presume that extremely high producing cows must be more efficient heat eliminators in order to dispose of the excess incident to heavy feed consumption and milk production.

The difference in heat tolerance of dry producing cows confirms observations elsewhere. The explanation probably lies in the lower feed consumption of the dry cows.

The significantly higher respiration rates of predominantly black animals compared to predominantly white ones, when exposed to direct sunlight, agrees with data obtained in Louisiana and South Africa. There it was shown that white or light colored animals reflected 22 to 55 per cent of sun radiation compared with two and a half to 10 per cent by black animals.

A comparison of Jerseys and Holsteins in the Imperial Valley study confirms work done at Davis and other stations that Jerseys are more heat tolerant than Holsteins.

Beef Cattle Studied

From the standpoint of respiration rates under comparable conditions, beef cattle seem to suffer more from the heat than dairy cattle. The longer hair coats and higher condition may be two of the factors involved.

Beef cattle brought into the Valley in the spring, heavy with calf, do well during the first summer.

The next spring the cows do not shed and have dry, bleached, rough coats while they are in the area.

The second calves do fairly well until hot weather, then become stunted, get a rather yellowish coat, (Herefords). Many of these second crop calves do not recover with the arrival of cool weather in the fall.

Heat tolerance as reflected by respiration rates was proportionate to the amount of Brahmam blood in the cross-breds. The data furnished some evidence in confirmation of observations reported from other parts of the world that Herefords are somewhat more heat tolerant than Shorthorns.

Grazing Habits

Observations on grazing habits showed a decreasing time spent in grazing during daylight hours as the weather progressively became hotter. This was true of all cattle but to a less extent of the Brahmams and their cross-breds.

The data collected show comparatively little difference in air temperature in the shade and in the open. The principle function of common shade is to minimize the heat intake from direct sun radiation.

Studies to Continue

Determination of the minimum amount of Brahmam blood for optimum adaptation in the Imperial Valley is a major point for investigations for year-long cattle management.

Investigations on size and types of shades combined with artificial means of facilitating heat loss by the animals through conduction and radiation offer good possibilities.

Pasture production and management of livestock on pastures is a major objective for cooperative investigation by the Agronomy and Animal Husbandry Divisions at the Meloland Station.

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Early Recognition, Regulatory Control of Cattle Scab Important To Avoid Heavy Losses

Dean P. Furman

In California the name cattle scab is most often applied to a contagious diseased condition of the skin caused by a small mite, known as **Psoroptes communis bovis**, although as a general term it actually denotes skin infestations by four different kinds of mites.

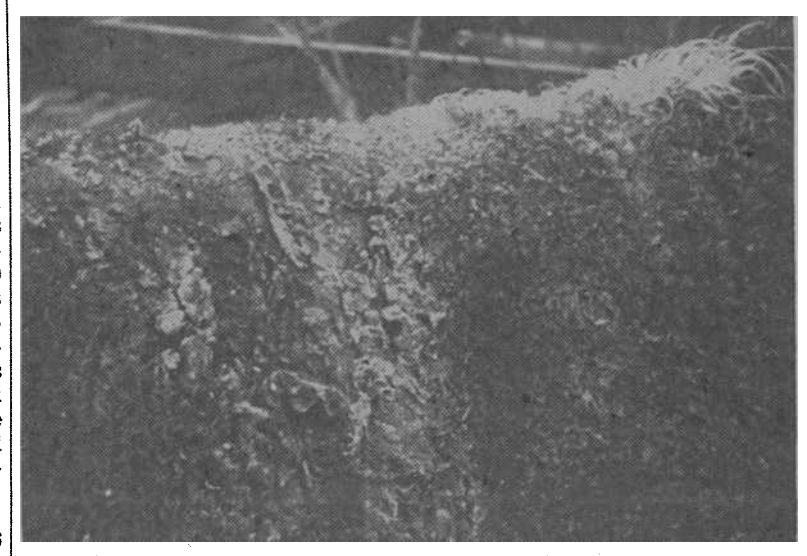
Common, or psoroptic, cattle scab is of interest to all cattlemen because if uncontrolled it may cause great losses through reduction in weight, failure of young livestock to thrive and gain weight normally, and an increase in the death rate, especially among cattle in a poor state of nutrition and low vitality.

Cooperation Required

Cattle scab is not new to California nor is there any great probability that it will be eradicated here in the near future.

Importations of cattle from other regions alone would argue against its permanent eradication, particularly since animals in otherwise good condition may sometimes harbor a few mites with little or no obvious signs for a considerable period of time.

The present system of inspection and regulatory control of infested or exposed cattle in this state should prevent scab from appearing in epidemic proportions. This system is dependent upon the intelligent cooperation of all cattlemen for its success.



An advanced case of cattle scabies on the right withers of a Hereford bull, showing the sloughing crusts or scabs.

Report Suspected Cases

Any cattle showing signs of scab should be reported to the Administrator of the Division of Animal In-

Testing for Scabies Mites

Close examination should be made to exclude such other causes as louse infestation.

If small papules are noted surrounded by red moist areas, scrapings should be made with a dull knife. Upon placing the scrapings in a small corked vial or glass jar and warming it to body temperature the small, yellowish, round mites will be easily seen actively crawling about. They are far smaller than lice, and unless they are warmed so that they move about, they will probably not be seen. Unless the mites are actually observed and recognized a diagnosis of scab should not be made.

The initial lesions of common scab usually appear on the withers, on top of the neck just in front of the withers, or around the root of the tail. From these areas it spreads over the sides and back until it covers almost the entire body. Yellowish crusts or scabs become obvious, the hair of affected areas falls out and the skin becomes hardened and wrinkled with corrugations.

Control

Common cattle scab is not transmissible to or by other domestic animals or man.

Dipping is the recommended procedure for control. Lime sulfur is the preferred dip although nicotine sulfate may be used. The dip should have a strength of not less than two per cent of sulfide sulfur if it is a lime sulfur dip and not less than 0.05 per cent of nicotine if it is a nicotine dip. The liquid should be used at a temperature of 95 to 105 Deg. F., and the animals should be held in it for two minutes. Two dippings from 10 to 14 days apart in one of these dips will usually cure cases of common scab.

Of the newer insecticides on the market DDT has not proven satisfactory for the control of scab. Benzyl benzoate, tetmosol and 666 are more promising but are still strictly in the experimental stage.

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