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WE NEED MORE SILAGE

1.—*Looking Backward*

By S. L. DILKES, B.Sc. (Agric.)
Agricultural Adviser

IF we are to achieve greater production in the dairying sphere—and the urgent need for such increases has been heavily emphasised in recent years—we must have more and better conserved fodder. Dairying is difficult in Western Australia, for we usually have only three to four months in which green feed is plentiful and this is followed by a prolonged "lean period" only alleviated by summer crops and irrigated pastures in very restricted areas.

Herd-recording statistics have repeatedly indicated a trend towards shorter lactations, and this is due mainly to cows being dried off during the early summer months.

An extension of the lactation period would be an important step towards increased production and greater prosperity in the dairying industry. This extension can best be achieved by providing nutritious and succulent conserved fodder—of which silage is an ideal example.

I make this statement with a full realisation that hay has long held pride of place in the conserved fodder sphere—and I am fully aware of the fact that despite spasmodic, and mainly short-lived, periods of popularity extending over the past 50 years, silage-making has still to earn wide acceptance.

The reasons for the popularity of hay are not far to seek. Hay making is comparatively easy—especially if the farmer is not too particular concerning its quality. Most farmers are reasonably familiar with haymaking techniques and the introduction of modern equipment such as tractor-borne mowers, side-delivery rakes, tedders and balers has made the work simpler, speedier and much less laborious.

The making of good silage on the other hand is a more difficult process requiring a sound knowledge of the fundamental principles involved in converting pasture into a succulent and nutritious fodder reserve. No doubt much



Concrete "tower silos" of large capacity are highly suitable for the ensiling of chaffed or chopped material. They are costly to erect however and often inconvenient in that material may have to be carted to them from distant paddocks.

of the present lack of interest in silage is due, in part at least, to unfortunate experiences in the past when heavy losses, shortages of labour, and the availability of other forms of foodstuffs, all tended to leave the farmer with the impression that silage was not worth the time and labour spent on making it. Perhaps also, the lack of real experimental evidence as to the feeding value of high quality silage caused its real value to be overlooked.

Modern developments have made it possible to make silage at a reasonable cost and for a much smaller expenditure of labour. As a conserved fodder, silage has much to commend it, for ensiling is a process whereby succulent green feed may be preserved for long periods with a minimum loss of digestible food materials.

It may be made successfully under difficult weather conditions and from crops which are unsuitable for haymaking. It greatly increases production per acre by providing a means of storing fodder when there is a surplus so that it may be used in times of shortage. Where silage is not made, far too much good pasture is left in the paddocks to be bleached into poor quality roughage during the hot summer months.

The making of silage should become as much part of the routine of farming, especially dairy farming, as is the making of hay; it should not necessarily displace haymaking but should at least be complementary to it. How often does one come up against instances where farmers have contracted to have their hay baled at such and such a date, only to find that owing to some unforeseen holdup the contractor is unable to commence on time? As a result the hay may be left lying in the paddocks for several weeks, during which time it may have been alternately saturated and dried out several times, considerably reducing its feeding value?

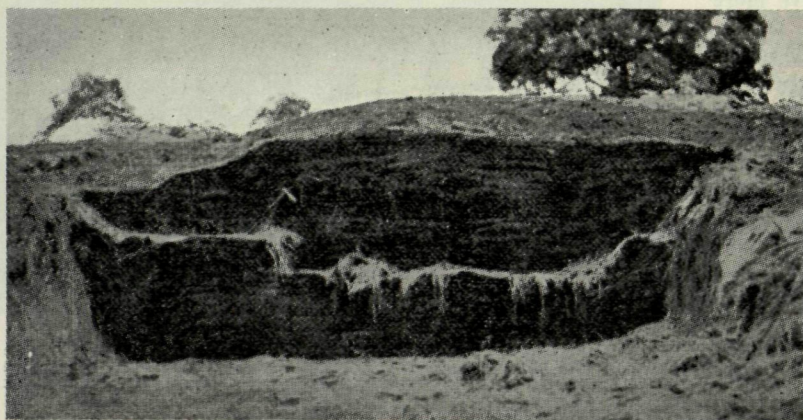
Furthermore, the man who makes hay has his only form of conserved fodder in putting all his eggs in one basket, so to speak. Periods of heavy rainfall during the haymaking season are not infrequent, and are liable to spoil hundreds of tons of potentially valuable meadow hay. The year 1951 saw such a season when much time and labour was spent in a vain endeavour to

HISTORICAL

The very fact that the word silo appears to have been derived from the Latin word *sirus*, meaning a pit, suggests that the process known as ensilage is a very ancient one indeed. It is known that many centuries ago underground pits were extensively used for the storage of grain, and Pliny mentions that grain was often stored in the ear by placing it in trenches dug in dry soil and then covering it with earth to exclude the air.

Writing in 1786, Professor John Symonds, of the University of Cambridge, mentioned that in Italy, where leaves were used as winter feed for cattle, the peasants had a method of preserving the freshness of the leaves by storing them in barrels. He says:—

"To this effect they gather them at the time of day when the heats are most fierce and spread them very thin on a pavement abroad where they suffer them to lie for three or four hours; after which they put them into wooden casks and then press them down as close as possible and cover them entirely with sand. The very moment after they have taken out the quantity which is wanted they stop up the casks, lest the leaves should be exposed to the air; by which method they are enabled to keep them fresh and tender throughout the whole winter. It is customary for the peasants in some parts of Italy to bury the leaves in a pit and cover them with straw on which they lay either clay or sand; and both methods are equally calculated to answer the purpose."



"Pit" or "trench silos," as this photograph shows, will make silage of excellent quality. They are much cheaper than the tower silos and may be placed in or near the paddocks where the greenstuff is grown.

save large quantities of hay in stooks, bales and sheaves. The hazards of bad weather and bushfires always exist and barely a year goes by without these disasters taking toll of many tons of valuable fodder.

It is obviously much more practical to have a programme of fodder conservation which includes meadow hay to provide the necessary roughage, with silage to add the succulence which is missing from the dry pastures.

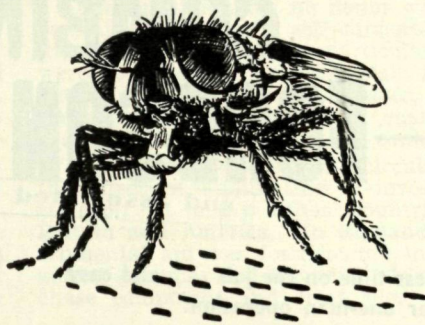
Silage making may be carried out on any farm with but little difficulty and with a minimum of expenditure. A vital factor in popularising silage has been the educating of the farmer to appreciate the real value of this form of conserved fodder. When full appreciation of this is forthcoming I feel certain that the farmer will soon overcome the other problems and it is hoped in this series of articles to give instruction on making good silage and in using it to the best advantage.

However, silage as we know it today was first recorded as having been made in France, where it appears that a M. Auguste Goffart conducted trials and experiments, the reports of which led to the introduction of the process into the United States about 1875. A little later, Vicomte de Chezelles, a contemporary of Goffart, while in England to attend the Royal Agricultural Society's show at Reading, gave details of the process carried out by him on his own estate, where he had a silo capable of holding up to 1,000 tons of silage.

In America the process rapidly became popular, owing largely to the fact that maize is a widely-grown crop in that country, and having a high carbo-hydrate content lends itself admirably to the making of silage. To this day, the tower silo is a standard component of farm buildings in the U.S.A.

In England the ensiling of grassland herbage became very popular for a time and many different types of containers were tested. Un-

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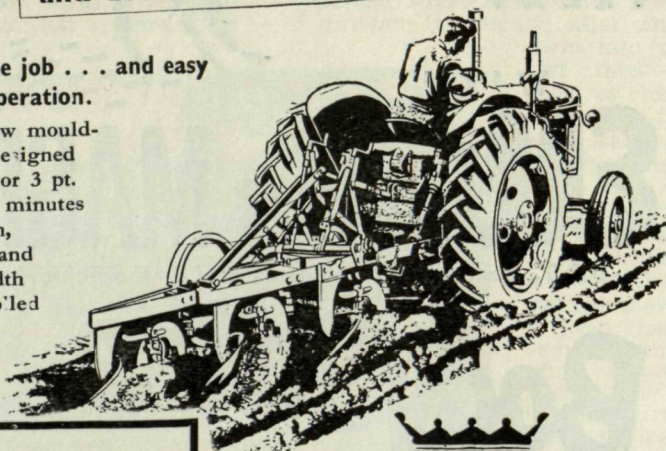
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fortunately, however, it would appear that the fundamentals of the process were not completely understood and recommendations tended towards the use of more mature herbage, a practice which we know now, is apt to reduce the feeding value of the product.

In 1885 George Fry wrote a book entitled "Sweet Ensilage" in which he advocated a process which necessitated a temperature of at least 120° F. in the ensiled mass, at which temperature the digestibility of the constituents, particularly the proteins, suffered to such a large extent as to render the silage quite inadequate for high-producing animals.

For these reasons the making of silage fell from favour both in England and in Europe, the trend being towards improvements in hay-making methods, a state of affairs which existed until recent times.

LOCAL EXPERIENCE

In this State the story is somewhat similar. It would appear that the first silage used in Western Australia was made by the late Mr. Charles Harper, at Woodbridge, in the early 1890's, an open-topped wooden frame being used as the silo. Early in the present century we find reference in the W.A. Journal of Agriculture to pit silage made by Mr. A. W. Bolden, at Peak Hill. In 1904 a stone tower silo 20 feet in height was erected at the Narrogin School of Agriculture, to be closely followed by the erection of a similar tower in brick at Bunbury by Mr. Frank Venn. At this stage it seemed that silage making would become standard practice in this State, but for various reasons the interest in this form of fodder conservation waned until the 1920's when a great impetus to the dairying industry was given by the introduction of the Group Settlement Scheme.

Silos of many types and descriptions were erected, the most popular method being that of the plain stack silo which called for no special container, being built inside half a dozen or more guiding-posts. Often even these were omitted. These rough and ready methods

were perhaps unfortunate for while excellent silage can be made in this way, unless due care is exercised and the principles of the process are understood, waste is liable to be very high and the final product is apt to be sour and unpalatable.

Once again we find that silage lost popularity except for a few individuals who persevered to master the art. Then there was a wide-spread renaissance of silage making in the years immediately preceding World War II.

At about this time, no doubt with a view to becoming completely self-supporting, we find that European countries, particularly Germany, were conducting experimental investigations not only into the actual processes, but also into the economic applications of ensiling to farm practice, and all other aspects connected with it.

This knowledge was freely circulated and had the effect of stimulating re-investigation and research in many other countries including Britain and America. In England alone, Governmental aid was forthcoming in the form of actual subsidies and financial assistance to purchase equipment and erect silos, with the re-



The buckrake has greatly reduced the labour costs of handling green material for ensiling. Here the buckrake has picked up a load from the window.

sult that at the present time silage making is again becoming a standard part of farm operations—this time on a more solid foundation of research and experimentation.

(To be continued.)

A REMINDER

HAVE you registered your orchard? One fruit tree or a single vine is an orchard for the purposes of the Plant Diseases Act and must be registered accordingly. The registration fee for less than one acre of trees or vines is 2s. Apply Department of Agriculture, Perth.

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