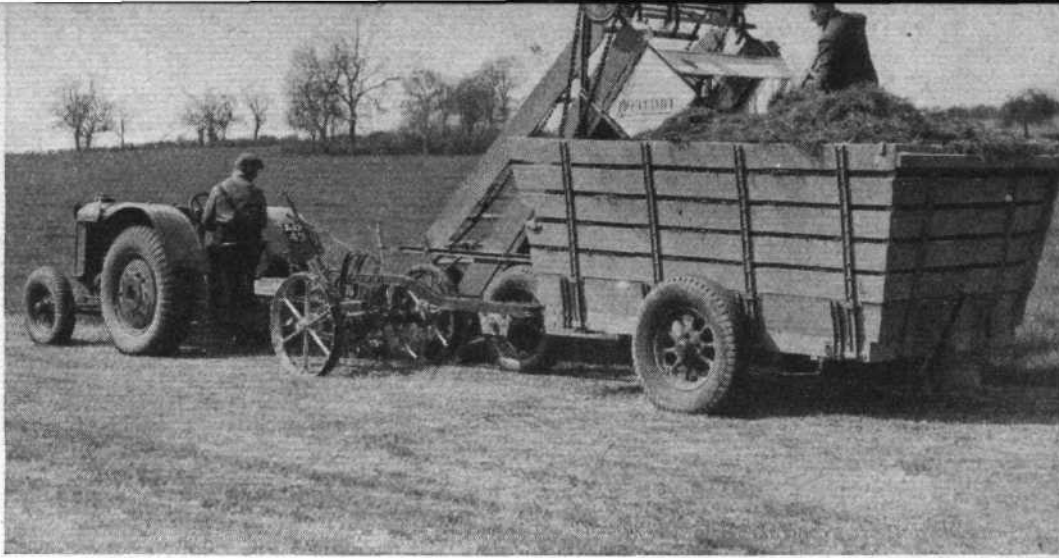


*Airports Conference Papers*

# GRASS-DRYING on AERODROMES

## *An Economical Method*

By CHARLES M. NEWTON



"Farmer and Stock-Breeder" photograph.

**I** THINK my first duty should be to warn aerodrome owners that it is not yet established that there is any large amount of money to be made from grass-drying.

All I claimed in a recent discussion was that, by installing a grass-drying plant, we had reduced the cost of maintaining an aerodrome.

In the past, the practice of most aerodrome owners has been to cut the grass a number of times during the summer with gang mowers, leaving the cuttings lying on the ground. It has always seemed to me that this was an uneconomical and wasteful proceeding, not only from a local, but from a national point of view. It is estimated that in this country something like 50,000 acres of land which previously produced food in the form of meat, milk or grain are now, as landing grounds, devoted to a use that is entirely non-productive from the food point of view. So, if we can conserve the grass which grows on aerodromes and turn it into feeding stuffs, we are adding to the food supply of the country, with a corresponding decrease in the amount of feeding stuffs imported from abroad.

It is very difficult to graze a busy aerodrome, and it is usually too dangerous to aircraft to allow the grass to become sufficiently long to be made into hay, so that it was a natural evolution that grass-drying should be looked to for a solution of the problem of not only maintaining the surface, but of producing food from aerodromes.

Practical grass-drying dates from 1926, when the late Professor T. B. Wood and Dr. H. E. Woodman, of Cambridge, drew attention to the high feeding value of young, short grass, and showed that this could be preserved almost unimpaired by artificial drying, and that dried grass would replace highly concentrated cakes for beef or milk production. Since that date much progress had been made and a number of improvements have been effected in the design and manufacture of grass-drying plant, but there still remains a good deal of experimental work to be done.

Apart from the question of improvements in the plant, I also feel that it is going to take some time to persuade farmers that dried grass is worth the price it is necessary to charge for it, although, apart from the cost, the actual price is fixed on analysis, and arrived at by calculating the amount of purchased cake it will replace, plus an added value for the vitamins and minerals which are present in the dried grass and not in the cakes. A ton of good-quality dried grass (17 per cent protein, 58 per cent starch equivalent) is worth, on its replacement value only, about £6 10s. per ton. The cash value of the minerals and vitamins may be put at £1 per ton, and this gives a total value for the dried grass of £7 10s. per ton.

### Value of Dried Grass

I know that a number of aerodrome owners have been contemplating the installation of grass-drying plant, and I know that many hesitate, wondering if there will be a market for large quantities of dried grass if it is produced by most aerodromes in the country. In view of the fact that the British farmer buys something like £30,000,000 worth of cake, meals and feeding stuffs directly or indirectly from abroad, it is hardly likely that the production of dried grass from aerodromes will materially affect the market. From the national point of view, too, if dried grass is produced from aerodromes the present position will be quite reversed. Aerodromes are, at present, looked upon as wasteland; when dried grass is produced from them they will yield more than the average grassland in this country. The yield from grassland is judged

The "Cutlift" combine, referred to by Mr. Newton, cutting and loading grass for the drier. Note the almost lawn-like appearance of the mown area in the foreground.

by the total protein and starch equivalent produced, and dried grass from an acre will produce about 10 cwt. protein and 35 cwt. starch in a season, whereas a crop of hay produces only about 3 cwt. protein and 9 cwt. of starch in a season.

The feeding value and advantages of dried grass, however, is hardly the subject for this paper, and must be left to the agriculturists and scientists. Having sketched the history of dried grass and described the produce, I will now turn to its application to aerodromes, which is the subject in which we are specially interested.

Having decided that you wish to install a grass-drying plant on your aerodrome, the first thing to do is to choose the site for the building to house the plant, which will measure about 80ft. x 25ft. This must be placed on the perimeter of the aerodrome, where it will not obstruct flying approaches, but, on the other hand, it must be as near to electric current as possible, and also have a good access to the road for delivery of the coal or coke and the removal of the dried grass.

The next matter to consider is the make of drier, and there are a number on the market, all of which have their special appeal. I can only say that my own experience has been acquired with that made by Ransomes, Sims and Jefferies, of Ipswich, an example of which we decided to install at Sywell Aerodrome. The drier consists of a steel casing 30ft. long, in which is a floor, made of a series of perforated plates, over which the grass is drawn by a conveyor, which is formed by cross-bars connecting together two endless chains. The drier casing is divided into two chambers. Two fans driven by an electric motor are provided and hot air is supplied to each chamber by a separate fan at the correct temperature for each stage of drying. The air supplied to the first chamber is at 300 deg. F., whereas that supplied to the second is at 220 deg. F. The fans draw their hot air from a furnace, and the temperature of the hot air is controlled by a series of dampers. A system of recirculation is used in which air from the fan supplying the second chamber is passed up through the mattress of grass and recirculated by ductwork back to the furnace for reheating. The furnace is fed by an automatic stoker

### Marketing the Grass

Having decided to install your drier, the next problem to consider is the marketing of the produce, and here you must be governed by local conditions. If there are a number of dairy farmers in the neighbourhood who are likely to buy dried grass, then a baler may be installed. With this the dried grass is compressed into trusses, weighing on an average 70 to 80 pounds. If, however, there is not likely to be a local demand, it might be better to install a grinder, by which the dried grass is ground into meal, put into bags and sent by rail to cake manufacturers, etc.

To return to the cutting of the grass: this will now be done by a tractor-drawn "Cutlift" combine, by which the grass is cut, taken up an elevator and dropped into a trailer behind, in one operation. The great advantage from a flying point of view is that the grass is not left on the ground to be an obstruction, like hay, and the somewhat large cutting contraction is easily seen from the air. The grass is cut when it is from 5 to 8 inches long, about a third of the length at which grass is cut for haymaking, and the continual cutting of the young grass greatly improves the surface of the aerodrome, and gives it a lawn-like appearance. It will be realised,



Mr. C. M. Newton, who read this paper at the Airports Conference, is the new chairman of the Aerodrome Owners' Association