

A SIMPLE TOOL FOR CALCULATING LOSS OR GAIN IN WEIGHT RESULTING FROM A CHANGE IN THE MOISTURE CONTENT OF PRODUCE

by

M F S Jamieson

Formerly of the Tropical Stored Products, Centre,
(Tropical Products Institute), Slough

Produce which loses moisture as a result of drying, or which absorbs moisture during storage in humid atmospheres, suffers a change in weight which, when expressed as a percentage of the original weight, is always larger than the change in percentage moisture content.

In an earlier note (Oxley, 1962) on this subject, a Table was presented for calculating the loss in weight which occurs on drying, but a similar Table for produce which has absorbed moisture was not given. Furthermore, the Table was restricted to intervals of 1 per cent moisture content.

The nomograph presented here (Fig 1) may be used to ascertain the percentage loss or gain in weight from a knowledge of the initial and final moisture contents. As an example, produce with an initial moisture content of 20 per cent which dries during storage to a final moisture content of 15 per cent will suffer a weight loss of 5.9 per cent. By laying a straight edge from 20 per cent (on the initial moisture content scale M_1) to 15 per cent (on the final moisture content scale M_2), the weight loss can be read off as 5.9 per cent (on the weight loss or gain scale G). The scales are graduated in 0.5 per cent intervals but can be read to 0.1 per cent. As moisture contents can rarely be determined with an accuracy greater than ± 0.2 per cent, the weight loss or gain calculated in this way is sufficiently accurate for all practical purposes.

The nomograph is based on the following equation:

$$G = \frac{100 (M_2 - M_1)}{100 - M_2}$$

Where G = Loss or gain in weight as a % of the original weight.

M_1 = Initial moisture content % wet basis.

M_2 = Final moisture content % wet basis.

While the nomograph can be used for assessing weight loss on drying, it is hoped that it will be particularly useful to storekeepers who require to account for stock-taking losses or excesses, on the basis of changes in moisture content.

Reference

OXLEY, T A 1962. Weight loss on drying. *Trop. stored Prod. Inf.*, 4, 129-130.

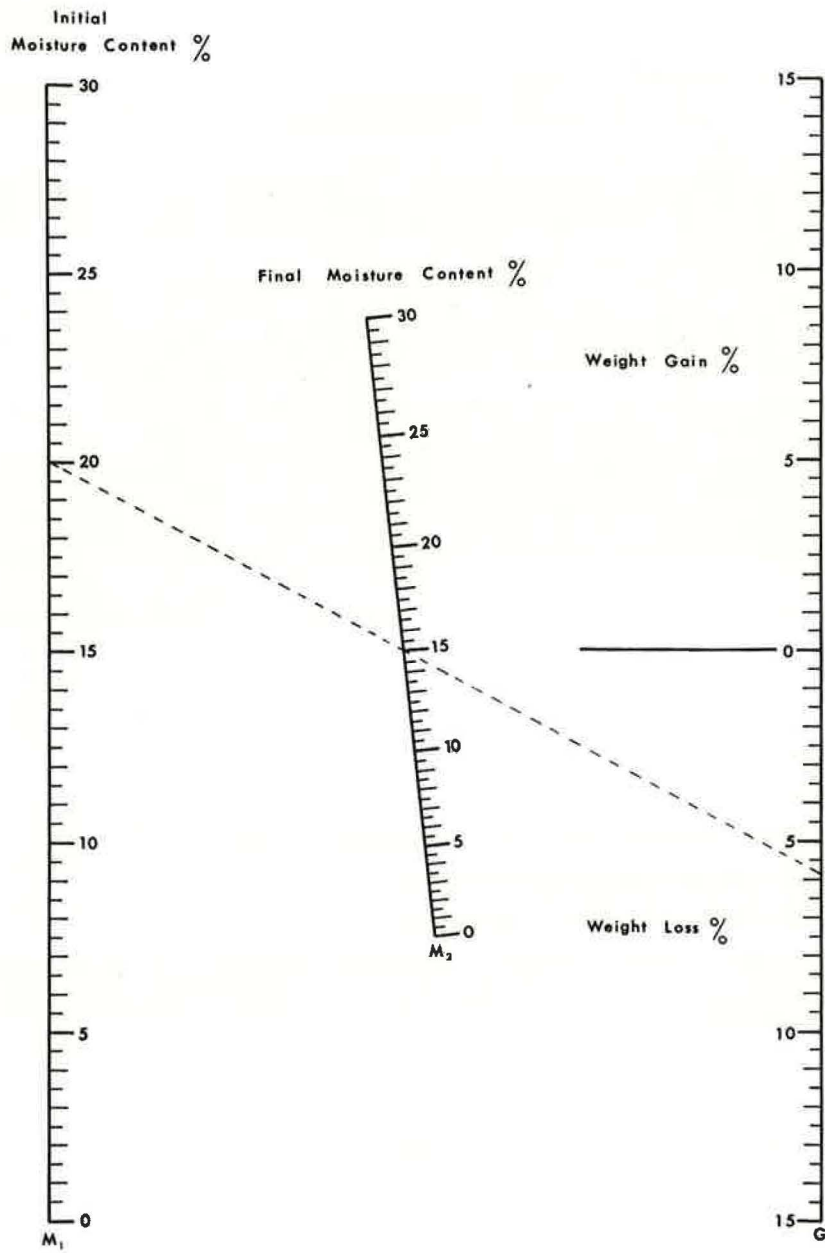


Fig 1 Nomograph for calculating weight losses or gains resulting from a change of produce moisture content.