Leaflet Series S. No. 5.

UNIVERSITY COLLEGE OF WALES,
ABERYSTWYTH.

WELSH PLANT BREEDING STATION.

Aberystwyth-bred

Varieties of Oats and Pure Line Selections of Hen Gymro Wheat

BY

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white, and rather small with a moderately thin husk, but when well-filled compares favourably with that of Victory in feeding quality. On soils of good fertility, its total yield of grain is on the average 8 to 10 per cent. superior to Grey Winter, while on rich soils the margin in its favour may be as much as 30 per cent. or more.

Because of its relative shortness of straw and high tillering capacity it is not generally advisable to graze S.172 with stock in the spring except on very rich soils retentive of moisture.

S.172 is recommended for soils where the general yield expectation is from 25 to 45 cwt. per acre, and its relatively short, stiff straw should under these conditions make it a popular variety for grain production as well as for harvesting with a combine harvester. In hardiness and time of maturity it closely resembles the variety S.147.

Descriptive Features.—Readily distinguished by its short very stiff straw, which is about $\frac{3}{5}$th the length of that of Grey Winter. Panicle open, of medium size with short, stiff and mainly horizontal or very slightly ascending branches; basal whorl generally consists of one long branch and one or two short ones at about right angles to the long one. Spikelets small, uppermost and outermost two-grained, inner and lower generally single-grained; single grains fairly numerous in the less well developed ears. Grain rather small, pointed, usually free of awns, with a few medium long, very fine hairs at the base of the lower grain, or none.

Husk percentage	.. .. ..	24 to 26.
Weight per 1,000 grains	.. ..	about 32 to 34 grm.

II.—HEN GYMRO WHEAT.

Pure Line Selections S.70 and S.72.

The two pure lines described below were bred and selected by Dr. T. J. Jenkin from amongst 265 original selections taken from commercial stocks of Hen Gymro, and which after trials for grain yield were marketed in 1928 as improved strains of Hen Gymro wheat. Compared with the latter, they are more uniform in type and superior in grain yielding capacity. These new strains are recommended for sowing on soils of lower fertility than is required for good crops of Standard Red wheat. In hardiness and general straw characteristics they closely resemble the old Hen Gymro stock, and when grown in exposed situations maintain a good dense growth and give better yields than Standard Red. These wheats in spite of their rather weak but flexible straw have the great advantage on land of relatively poor quality of being able to ripen a relatively good grain sample under poor ripening conditions. Good standing crops are, however, frequently grown on the better types of soil in the drier areas where the soil is firm, dry and stony, and does not naturally tend to an over-production of straw. Because of their lateness in ripening, these new wheats should be sown towards the end of September or early in October.

Hen Gymro S.70.

Descriptive Features.—Beardless ; chaff white or pale red ; hairy. Straw long but relatively stiff. On the average has outyielded Standard Red by 10 per cent. Grain red, small as compared with Standard Red at its best, but rather large for Hen Gymro. Ripens well under adverse conditions, but somewhat later than ordinary Hen Gymro.

Hen Gymro S.72.

Descriptive Features.—Beardless ; chaff white, smooth. Straw shorter and rather weaker than S.70. On the average has outyielded Standard Red by 11 per cent. Grain red, smaller than Standard Red but relatively large for Hen Gymro. Suits lighter soils than those on which Standard Red is at its best, and is later ripening.

SECTION B.—Oats for Spring Sowing.

I. For soils of good fertility : S.84.
II. For soils of average fertility : S.175 and S.220.
III. For soils of below average fertility : S.79.
IV. For soils of low fertility : S.171 and S.75.

Of varieties of oats for sowing in the spring, the range of types is greater than in autumn-sown oats, and hardy, high tillering varieties which succeed well on the poorer kinds of soils are available. Until comparatively recent times cereal breeders have given most of their attention to the breeding of new varieties for the better soils, mainly because of the larger acreage which is likely to profit thereby, and in part because the task is in some respects rather less difficult. The breeding of spring-sown varieties for the poorer levels of fertility has, however, received much attention at the Welsh Plant Breeding Station, and while progress has been slower than in the breeding of strains for the better soils, some advances have already been made.

Attempts to grow early maturing, high grain-yielding varieties on poor unimproved upland fields have not in general met with any appreciable measure of success. This is due to the greater demand which such varieties make upon the available plant food in the soil and their greater dependence on climatic conditions favourable to rapid growth in the pre-heading period. It is only after the fertility of such fields has been improved by suitable pre-treatments, balanced manuring and drainage, where necessary, that reasonable hopes of the successful cultivation of early grain-yielding varieties can be entertained. Until such improvements have been effected the varieties most likely to give reasonably sure crops from season to season under adverse cultural conditions are the relatively late maturing, high tillering and straw producing types such as *Ceirch-du-bach, Ceirch Llwyd Cwta,* S.171 and *Avena strigosa* (*Ceirch Llwyd*).

It was with the aim of breeding hardy and comparatively early grain-producing varieties for *improved* upland soils, as well as for lowland fields of average cropping capacity, that crosses were made several years ago between Victory and Radnorshire Sprig and other