

Two Spine-Free Raspberries

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A recessive gene for spinelessness in the raspberry (gene *s*) was first reported in 1939, when it was discovered in the heterozygous condition in Burnetholm, a Scottish cultivar of unknown parentage (3). Burnetholm has been a valuable parent in raspberry breeding and its derivatives have been used extensively in Britain, Canada and the U.S. Several spiney

cultivars have been obtained from them and the first spine-free cultivars homozygous for the gene have now been released by the Scottish Crop Research Institute (SCRI).

The absence of spines is an obvious advantage for a raspberry cultivar. Fruit picking is still done predominantly by hand and growers have difficulty in recruiting casual labour

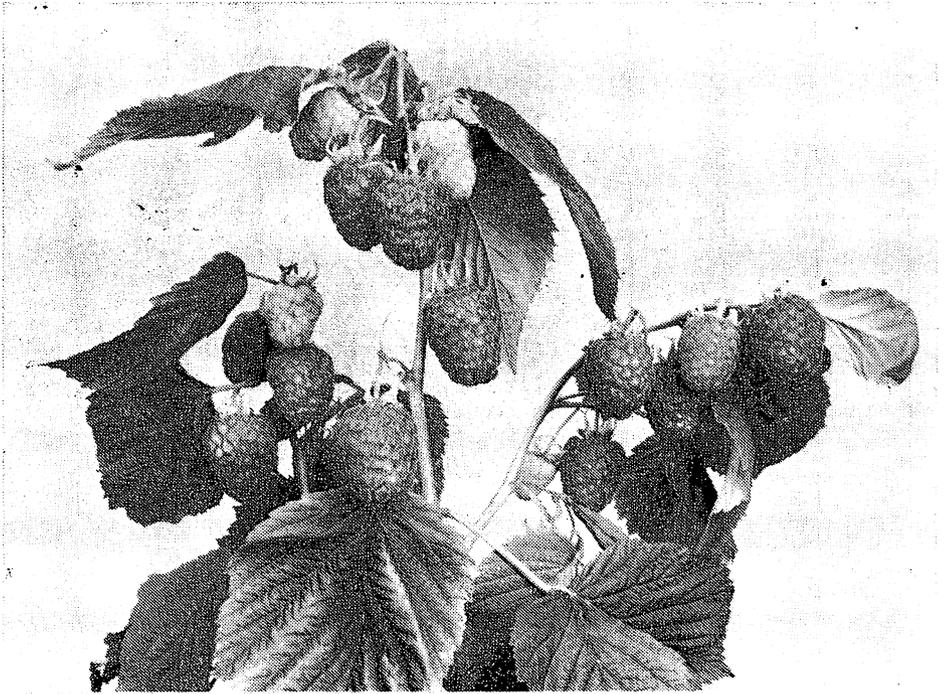


Fig. 1. Fruit of Glen Moy.

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Fig. 2. Fruit of Glen Prosen.

when their varieties are spiny and unpleasant for picking. Spines are also a disadvantage when machine harvesters are used, because the berries are damaged when brought into contact with spines by the passage of the machine; high winds frequently cause damage in this way, too. Another advantage of spinelessness is in cane health, because when spiny and spine-free segregants were compared the latter were found to have a lower incidence of spur blight, cane botrytis and cane spot (2).

A big advantage for the plant breeder is the pleiotropic effect of gene *s*, which leads to the absence of glands on the cotyledons and permits screening for spinelessness at the earliest possible stage by selection of seedlings with nonglandular cotyledons.

The two spinefree cultivars are Glen Moy and Glen Prosen. Glen Moy, tested as 7210/204, is an early cultivar like Glen Clova, but with improvements in yield, fruit size, flavor and resistance to certain cane diseases. Its fruits are medium red and in SCRI trials averaged 3.8 gm compared to 3.0 gm for Glen Clova; they have an attractive aromatic flavor. Vegetative growth is vigorous but early indications are that the cultivar will respond reliably to cane vigor control practices. Glen Moy has gene *A*₁, which confers resistance to the common strains of *Amphorophora idaei*, the European aphid vector of virus diseases, and gene *Ls*, which causes it to show severe symptoms when infected with leaf spot virus which is commonly carried without symptoms by cultivars which lack this gene. It

also carries gene *Bu*, which confers immunity from the common strain of bushy dwarf virus, and is resistant to spur blight and cane botrytis. Unfortunately it is prone to midge blight, because extensive splits in its cane bark provide ample breeding sites for the raspberry cane midge.

Glen Prosen, tested as 6820/54, is a late cultivar whose most notable feature is fruit firmness; this makes it a good choice of cultivar for transporting to distant markets or for processing. Objective tests with a Hunter pressure gauge at Puyallup, Washington, showed that its fruit were considerably more firm than standard cultivars like Willamette, Meeker and Glen Clova (1). The fruits are slightly larger than Glen Clova, round conical in shape with a medium red color and an attractive sharp flavor. Vegetative vigor is moderate and consequently cane vigor control is not normally required. Glen Prosen also carries *A*₁ for aphid resistance but lacks gene *Bu* for immunity to bushy dwarf virus. It is susceptible to common cane diseases but is moderately resistant to botrytis fruit rot.

Literature Cited

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