

TWELVE HUNDRED BUSHELS PER ACRE

W. G. BRIERLEY, University of Minnesota

In 1943, a block of Haralson apple trees in an experimental orchard at the University Fruit Breeding Farm planted in the filler system yielded at the calculated rate of 1212.7 bushels per acre. **On an actual measured acre the yield was 1192 bushels.**

This orchard was planted in the spring of 1932. Planting distances were $17\frac{1}{2} \times 17\frac{1}{2}$ feet placing $35\frac{1}{2}$ permanents, $35\frac{1}{2}$ semi-permanents and 71 fillers per acre. The objectives in planting this orchard were to provide an opportunity to study the relative values of cultivation and three types of permanent sod covers, and also to study the advantages and disadvantages of the filler system of planting.

The plots intended for sod-mulch treatments were seeded in 1936. The mulch crops used were (1) medium red clover and alsike clover (2) white clover and (3) Kentucky blue grass, orchard grass and red-top. As the catch was poor due to drowth the plots were reseeded in 1937. These sod-mulch plots at present are much alike due to the growth of native grasses and weeds.

Comparison of filler planting with permanent spacing (planted 35 feet apart each way) has

been carried on in separate blocks on the west side of the orchard. These blocks have been kept in sod-mulch since 1936 and 1937.

Acre yields in the filler planting were calculated on the basis of 142 trees per acre for purpose of comparison. This method does not show performance on an actual acre basis as mixtures, replants, border trees and missing trees are not included.

Average annual yields per tree in the Haralson filler block have been a little higher than for the trees in the permanent spacing block except in 1942, an "off" year. Total yield so far in the filler block has been $4\frac{1}{2}$ times as much per acre as in the permanent spacing block.

In 1943 permanent spacing yielded at the rate of 265.9 bushels per acre compared to 1212.7 bushels per acre in the filler system. These high yields obtained from Haralson under sod-mulch management in the filler system indicate that this is a desirable system for this variety while the orchard is young. Experience has shown that a planting distance of $17\frac{1}{2}$ by 20 feet for the filler system may be more desirable than $17\frac{1}{2}$ feet each way.

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HARDINESS IN PLANT FAMILIES

F. L. SKINNER, Dropmore, Manitoba

Hardiness in plants is one of those things that is rather hard to define — there being so many factors that determine the amount of cold a plant can stand without injury.

In some plant families the plant must start the winter with a good supply of moisture at the roots if it is to survive severe cold. In others again, dry conditions in autumn are essential if the plant is to survive the winter.

At one time it was thought that plants from the more northerly latitudes were the likeliest to survive our severe winters; but experiments show that this is not an infallible rule.

Here at Dropmore, just north of latitude 51, two of our hardiest shrubs are Lilacs that were grown from seed collected by E. H. Wilson on the Diamond Mountains of Korea, which lie in latitude 38, or about the same latitude as the southernmost part of Italy.

As a rule plants from near the sea are not hardy with us, but pears grown from seed collected by Wilson at Pukchin, Korea, which is on the sea coast, at latitude 40, are hardy and bearing fruit with us, while

those grown from seed collected on the mountains at the north end of the main island of Japan have always killed to the snow line and finally were discarded.

It seems therefore, that no hard and fast rule can be laid down whereby one can definitely say that a plant will be hardy in a given location until it has been through a thorough trial by actually planting specimens secured from various geographical locations in which the plant is native. — From North and South Dakota Horticulture.

1,200 BUSHELS PER ACRE

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Total production of 1679 bushels per tree in the first 12 years has provided an ample margin of returns to justify the cost of planting, maintenance and ultimate removal of the filler trees.

Production Peak Probably Reached

It does not seem likely that yields per acre will increase from now on. As the filler trees are pruned to restrict spread and competition with permanents and semi-permanents their yield will be lessened. When the fillers are removed it is not

likely that yields of the permanents will increase enough to make up for the loss in production per acre for several years, if at all.

Fillers Must Be Removed

Although these records show excellent results from the use of fillers this system always should be considered temporary for use only during the early life of an orchard. Filler trees always should be first restricted

and then removed before the permanent and semi-permanent trees are checked in development and production. The time to remove the filler trees usually will be at 12 to 15 years of age depending upon tree vigor and planting distances.

Haralson Outyields Wealthy

Under sod-mulch total average yield per tree of Haralson for the 12 year period exceeded Wealthy by 48 per cent.

Contributions To Emergency Fund

	Amount
Excelsior Fruit Growers Association, Excelsior	\$20.00
Head of the Lakes Fruit Growers Association, Duluth ..	20.00
Bernard Crandall, Chem. Div., Farm Bureau Service Co.	3.00
S. M. Thimsen, Hopkins	3.00
Rev. Norman Batdorf, Maple Plain	2.00
Andrews Nursery Company, Faribault	10.00
Ulrich Fruit Farm, Rochester	7.50
Alvin Ulrich, Rochester	2.50
George W. Nelson, La Crescent	10.00
Henry W. Leidel, La Crescent	10.00
Chas. W. Smith, Oak Hill Orchard, Lakeville	5.00
Kenneth Evans, La Crescent	5.00
Al. Loffelmacher, Loff Orchards, Fairfax	15.00
Cuyuna Range Fruit Growers Ass'n., Deerwood	5.00
William A. Benitt and Linda James Benitt, Hastings ..	10.00
Erwin Mohn, Box 245, Rochester	2.50
Wahkon Box Factory, Wahkon	10.00
Smith Bros., Excelsior	7.50
Minnetonka Co-op. Fruit Growers Assn., Maple Plain ..	10.00
H. H. Walrod, Clear Lake, Iowa	3.00
Benjamin F. Dunn, Rochester	5.00
Mayo Properties Association, Rochester	10.00
Howard Lake Fruit Growers Assn., Howard Lake	15.00