RINGING AN UNSAFE STIMULUS TO FRUIT-BEARING.

SUMMARIZED BY
F. H. HALL

FROM BULLETIN BY
G. H. HOWE.

PUBLISHED BY THE DEPARTMENT OF AGRICULTURE.
RINGING AN UNSAFE STIMULUS TO FRUIT-BEARING.

F. H. HALL.

A dangerous remedy.

Sluggish fruit trees sometimes so tax the patience of their owners that any measure would be adopted, however drastic, if it promised to spur the laggards into fruitfulness. For this reason the practice of ringing trees and plants has occasionally, for a hundred years or more, been recommended by plant physiologists and used by growers to induce or to increase fruit-bearing. The method has a theoretical chance for success; since the removal of a ring of bark from tree trunk or plant stem may be made with comparative safety at a certain time in the season and does not seriously interfere with the upward circulation through the active, growing, new wood, but does prevent the downward flow of the sap with the plant food formed in the leaves. Thus the food for the whole plant, including the lower stem and roots, is concentrated in the parts above the ring, and should and does serve as a stimulus to the formation and development of fruit buds. But is this stoppage of the normal circulation without danger to the plant, or is the good great enough to overbalance any such danger? Only careful experiments, continued for some time, can answer these queries satisfactorily; and such tests, made at this Station, prove that the practice is generally either of too slight advantage to pay for itself or too dangerous to justify its use even when immediate results seem favorable.

Tests reported in Bulletin No. 151 of the Station prove that ringing grape vines of certain varieties produces earlier ripening and better clusters, but that the vines suffer severely and do not become normally vigorous again for a long time, if ever. Bulletin No. 288 reports ringing of herbaceous plants, like tomatoes and chrysanthemums, as detrimental to the plants and productive of no compensating results in earlier or better fruits. The present bulletin records tests of ringing on apple, pear, plum and cherry trees, which indicate very limited advantage for the practice under any conditions and decided disadvantages in most cases, particularly with the stone fruits.

*This is a brief review of Bulletin No. 391 of this Station, on Ringing Fruit Trees, by G. H. Howe. Anyone interested in the details of the investigation will be furnished, on application, with a copy of the complete bulletin. The names of those who so request will be placed on our Station mailing list to receive future bulletins issued, popular or complete edition as desired. Bulletins are published at irregular intervals, not monthly.
In June, 1910, a ring of bark one inch wide was removed from the trunk of each of 122 seedling apple trees then five years from planting. The bark was taken just above the surface of the ground, and left in each case a clean surface of succulent, active cambium (new wood) which began immediately to repair the wound, so that by the end of the season all the rings were entirely covered with new, healthy bark. The trees were exceptionally strong and vigorous to start with and probably in better condition to withstand ringing than average orchard trees. None of them showed any set-back from the operation. During this season no effect on the fruit could be expected, except some slight increase in size of the apples already set, but notes were taken on the crop as a check upon the effects of the ringing, if any, upon the number of trees fruiting and of fruits setting upon the individual trees in 1911. The results appear to favor ringing; since twice as many trees set fruit in 1911 as in 1910 (107 and 54, respectively), and the bearing trees produced 56 per ct. of a full crop in 1911 as compared with 7 per ct. in 1910. Of course, some of this increase was due to the advancing maturity of the trees, but it is evident that ringing these young, healthy, vigorous trees stimulated fruit production. The trees, however, never bore so good a crop again, even though subsequently ringed. In 1911, 27 of them were ringed a second time by removing inch strips directly above the former rings, again with quick healing and no apparent ill effects. But these trees ringed a second time averaged considerably less than half as good crops in 1912 as in 1911, and did no better than the trees ringed only in 1910.

In 1912, wider bands were removed from these same trees, the rings ranging from three to twenty-one inches on groups of four trees each. This severe treatment had no effect in stimulating fruit production, but an exhausting effect upon the trees, which increased with the width of the ring. One tree in both the three-inch-ring group and six-inch-ring group died after ringing, and from one to three trees in each of the other groups were lessened in vigor.

In 1911, Baldwin trees three years from setting were ringed, in groups of five trees each, beginning with two-inch strips and increasing the width of the band by two inches for each succeeding group until twenty inches was reached. At the same time the bark was removed from similar groups of trees in inch rings at varying distances from the ground, up to two feet. These young trees suffered severely from the ringing, as new bark was not formed rapidly enough to cover the wound in any tree by the close of the season. The foliage dropped very early on all the trees, several died, all showed lack of vigor, and only 10 per ct. of them started into growth the following season. Tests made the next year, with trees four years set, removing only one-inch rings, resulted about the same; as the ringed trees made less
growth than similar trees not ringed, dropped their foliage early and made less growth, particularly of roots.

From these experiments it is clear that the first ringing of seedlings influenced fruitfulness favorably and resulted in a good setting of fruit without noticeable injury to the trees, but that subsequent ringing did not produce similar effects. With the Baldwins the results were all unfavorable to the practice.

On young Bartlett pear trees ringed in 1912 by inch bands, the formation of new bark was not satisfactory; and before the end of the next season half of the ringed trees were dead and the others had made such poor growth that they were discarded. Digging showed the root systems to be very poorly developed.

Ringing is very seldom recommended for stone fruits; as trees of this kind usually come into bearing earlier than apples and pears; are not as hardy, are less resistant to external injuries and are shorter lived. Nevertheless, some tests of the practice were made on both plums and cherries, with even less satisfactory results than with the pears. Few of the wounds healed perfectly, the foliage lost color and dropped early, growth was stunted, and of all the trees treated only one Montmorency cherry made any material growth the following season. Where any fruit set, as it did on a few of the plum trees, the ringing led to no increase in quantity, and to some decline in quality.

"The results obtained from these experiments are not favorable to ringing fruit trees as a general practice. Under some conditions, for a limited time, a more favorable outcome might be expected. Hardy, vigorous, young apple trees may readily undergo a single ringing and be benefited thereby, but subsequent operations are injurious. Trees lacking vigor are often seriously injured by the practice. The deleterious effects of the treatment have generally been so marked upon various plant organs as to render the operation exceedingly hazardous. There seems to be no regular or systematic increase in fruit production. The gains do not offset the losses."