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# Report 1918-20 With the Supplement to the Guide to the Experimental Plots Containing the Yields per Acre Etc.



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## Botanical Department Xxxvi, Xxxvii

### Rothamsted Research

Rothamsted Research (1921) *Botanical Department Xxxvi, Xxxvii* ; Report 1918-20 With The Supplement To The Guide To The Experimental Plots Containing The Yields Per Acre Etc., pp 52 - 53  
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- XXXIV. W. B. BRIERLEY. "*Orchid Spot Disease.*" *Gardeners' Chronicle*, 1919. Vol. LXV. No. 1676.

A consideration of the several diseases of orchid leaves included under the name "Orchid Spot"; with notes on methods of treatment.

- XXXV. J. HENDERSON SMITH. "*The Killing of Botrytis Spores by Phenol.*" *Annals of Applied Biology*, 1921. Vol. VIII. No. 1.

It is shown that if *Botrytis* spores be exposed to the action of 0.4 per cent. phenol, the spores do not all die simultaneously, but some die in a few minutes and some not till two or three hours have elapsed. The curve showing the numbers surviving at different times has a sigmoid shape. If the strength of phenol be progressively raised, the curve becomes less and less sigmoid, approaching the logarithmic type of curve. With the same suspension it is possible to obtain either a logarithmic or a sigmoid curve according to the strength of phenol used. Both types of curve are shown to be explicable on the assumption that the individual spores differ in resistance and that a frequency curve showing the distribution in the resistance grades approaches the normal curve. The influence of the number of spores used is shown to be very considerable; and the consecutive transition from the sigmoid to the logarithmic type occurs, whether we raise the phenol strength, keeping the spore number constant, or reduce the spore number keeping the phenol constant, or use younger and younger spores.

#### TECHNICAL PAPERS.

##### CROPS AND CROP PRODUCTION.

- XXXVI. WINIFRED E. BRENCHELY. "*Useful Farm Weeds.*" *Journal of Board of Agriculture*, 1918. Vol. XXV. pp. 949-958.

During the war the deficiency in supplies of every kind led to a revival of interest in the uses to which many farm weeds can be applied. If the need ever became sufficiently urgent, weeds might serve many useful purposes, but with the restoration of more normal conditions most of them have again fallen into disuse.

Weeds have their uses in medicine, as dyes, manures, and as fibre plants, but in times of stress they are most valuable as fodder and human food. Couch grass, spurry, bent grass, nettles, chicory, gorse and poppy cake can all serve as fodder, especially as most of them, in addition to being nutritious, are obtainable in large quantities.

Chicory and "salep" (*Orchis mascula*) are the principal weeds used as human food. Chicory has long been employed as a substitute or adulterant for coffee, while salep enters largely into the diet of people of Turkey, Persia and Syria. Many weeds provide leaves that have been used as substitutes for tea and coffee, and the young tops of nettles, garlic and dandelion have been frequently used as green vegetables by country folk.

XXXVII. WINIFRED E. BRENCHLEY. "*Eradication of Weeds by Sprays and Manures.*" Journal of Board of Agriculture, 1919. Vol. XXV. pp. 1474-1482.

The chemical substances used as weed killers may be divided into two groups :—

1.—Chemicals that merely destroy the weeds and have no direct beneficial action upon the growth of the crops. These substances are usually applied in the liquid form as sprays.

2.—Compounds that not only destroy the weeds but also exercise a manurial action, thus directly benefiting the crop at a later date. These substances are usually very finely ground manures and are applied as dry powders when the leaves are damp.

1.—*Sprays.* Most of these are corrosive in nature and destroy the delicate plant tissues, either killing the weeds outright or so crippling them that they cease to be active competitors with the crop. The chemicals are applied in solution, the strength varying according to circumstances. The most commonly used sprays are copper sulphate, iron sulphate, and sulphuric acid, but other substances are occasionally employed, including nickel sulphate, arsenite of soda, potassium chloride and sodium hydrogen sulphate.

Copper sulphate is effective in eradicating charlock, and is also useful against spurry and poppies. Iron sulphate destroys charlock, but is better than copper sulphate for eradicating poppies and corn buttercup. Sulphuric acid is one of the few sprays that has been found to clear grass land of bracken.

2.—*Manures.* During the last few years attempts have been made to destroy weeds on arable land by the application of finely ground manures, especially cyanamide and kainit, and on grass land by the use of lime, gas-lime and salt, and a fair measure of success is considered to have rewarded the effort. Calcium cyanamide and kainit have been used in eradicating charlock and other weeds, but the results are somewhat variable. Salt is occasionally useful in reducing weeds, especially on grass land, and lime also acts beneficially by making the soil less suitable for some of the worst pests on sour land, as spurry, sheep's sorrel, corn marigold and annual knawel.

Taking all things into consideration, the use of finely ground manures as weed killers offers possibilities, but up to the present the results have been so uncertain and variable that it is not yet advisable to make definite recommendations for their use.

XXXVIII. E. J. RUSSELL. "*Report on the proposed Electrolytic Treatment of Seeds (Wolfryn process) before Sowing.*" Journal of the Ministry of Agriculture, 1920. Vol. XXVI. pp. 971-981.

A discussion of the results of pot experiments made to ascertain whether the proposed electrolytic treatment of seed was effective in increasing crop production. In certain cases, increases in yield seemed to be obtained, but in the main the treatment cannot be relied upon to give a successful result : twice, or possibly three times, out of seven it apparently succeeded ; once it apparently did harm, and in the remaining cases it did no good.