

in the complete disappearance of the lucerne in favour of grasses which utilise more surface water for their shallow root system. This applies to some conditions only, and the case of irrigating young lucerne on alkali patches is, for instance, an exception. The water tends to remove the salts from the sphere of activity of the roots while the young plants are establishing, and stands have been obtained in this way where it has been impossible to obtain them previously.

A further point in obtaining good strikes after a study of soil conditions is found in the application of lime to sour soils, where previously strikes have been poor and stands have ultimately failed, due to their inability to compete with grasses and weeds which have found the conditions more to their liking. On the whole, the lucerne country in Central Otago is "sweet," but there are exceptions. Where these are being studied, lucerne is being successfully grown where previously it has been condemned.



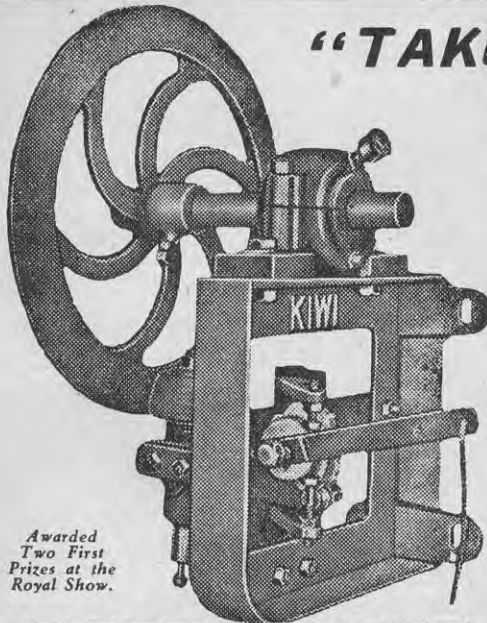
Inoculation effect on four-year-old stand. Left, non-inoculated; right, inoculated.

Use of Culture

Very few attempts are made to establish lucerne without the use of the bacterial culture. This practice is so well established as to need little comment, but one must not look upon the value of the culture from the sole standpoint of assuring a strike.

The accompanying illustration shows the results of inoculation after four

years. On the right is a fairly dense healthy sward which received the culture when established. On the left is a strip at the end of the paddock sown without culture. The effects of the culture were noticeable immediately, but it has become more outstanding each successive year, until now, after the fourth year, parts of the non-inoculated stand have given way completely to the competing grasses and



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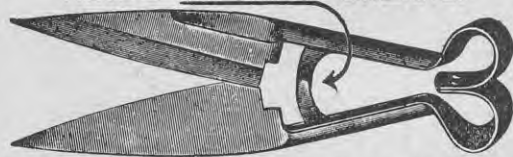
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