Fertilizers for potatoes in Manjimup and Pemberton areas

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In the Manjimup and Pemberton Areas

Results of four years of trials have made it possible to recommend ideal rates of fertiliser application for potatoes grown in these areas.

By J. P. Fallon, B.Sc. (Agric.), Adviser (Vegetables)

In articles published in previous issues of the Journal each of a number of potato fertiliser trials carried out in the Manjimup and Pemberton districts has been discussed and results reported. This article briefly summarises the results of these trials carried out over the past four years and makes definite recommendations to potato growers in these districts regarding quantities of fertilisers to be used on new Red Karri loam soils.

Four potato fertiliser trials have been carried out in the Manjimup and Pemberton districts between 1956 and 1960. As discussed in previous articles, the trials involved the use of fertiliser mixtures containing various levels of nitrogen, phosphate and potash. Plantings were made on new land on growers’ properties in September each year and the crops were sprinkler irrigated.

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<td>Sulphate of Ammonia</td>
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<td>Superphosphate</td>
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<td>Muriate of Potash</td>
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The degree of statistical significance of the results is indicated by one, two or three asterisks according to whether the difference is significant, very significant or highly significant respectively.

To date only one trial has been conducted where the fertiliser ingredients have been used in split dressings. In this particular trial no benefits were obtained by two applications. However, the use of split applications of fertiliser and the possible advantages of side dressings of nitrogen will receive further attention. In this summary only trials involving the use of all fertiliser constituents as a furrow application at time of planting have been considered.

The results of each of the four trials expressed as first grade yields are summarised in the table. It is interesting to note that a similar trial planted as a winter crop at Wokalup also gave generally similar results.

It will be seen from these figures that the amounts of fertiliser ingredients for highest yields on new karri loam soils could be as high as:

- Sulphate of Ammonia—6-9 cwts. per acre.
- Superphosphate—24-25 cwts. per acre.
- Muriate of Potash—2-4 cwts. per acre.

However, in making a general recommendation due regard must be paid to the variations which can take place in potato crops' fertiliser requirements due to
seasonal conditions, soil differences, and frequency of irrigation.

For example, there is some evidence to suggest that as the frequency of irrigation of crops is increased, the need for sulphate of ammonia increases. This is indicated by the response to higher levels of sulphate of ammonia in 1959-60, when the trial was given more frequent watering than in previous seasons.

In the light of experience gained from these trials and from observations made on commercial crops in the Manjimup and Pemberton districts the following general recommendation is made for fertilising potatoes on new karri loam soils:—

- **Sulphate of Ammonia**—6 cwts. per acre.
- **Superphosphate**—22 cwts. per acre.
- **Muriate of Potash**—2 cwts. per acre.

This is a considerable increase over the quantities of fertiliser now used by most potato growers, but in view of the price of potatoes and stability of the market, the increase in yield that may be expected from these rates should more than repay the additional fertiliser cost.

Growers wishing to use this fertiliser mixture can make special arrangements with fertiliser works to have the mixture prepared for them, but this may not be warranted as standard registered mixtures at rates which provide at least the minimum amounts of fertiliser ingredients listed could be used. Alternatively, standard fertilisers may be mixed to give the recommended quantities of ingredients. One standard registered fertiliser which closely approximates the fertiliser recommendation is Potato Manure B at the rate of 1½ tons an acre. This quantity, on average analysis, would give:—

- **Sulphate of Ammonia**—5.2 cwts.
- **Superphosphate**—22 cwts.

**Muriate of Potash**—2.64 cwts.

This fertiliser should suit most growers, particularly those who normally make supplementary applications of nitrogenous fertiliser during the growing period.

**Interactions:**

Results of all four trials showed that the response to each fertiliser tends to depend on the levels of the other two fertilisers applied. This means that reducing the rate of any one fertiliser below the recommended level could prevent the crop from responding fully to the other two, resulting in some wastage of these.

The recommended rate of application of each fertiliser represents the best rate to use, but only when the other two are also applied at the recommended rates.

**ACKNOWLEDGMENTS**

Grateful acknowledgment is made of the assistance and co-operation of those growers on whose properties trials were conducted. The considerable amount of detailed work carried out by officers of the Vegetable Section of the Department of Agriculture is also acknowledged, particularly that of Mr. T. Wachtel who was responsible for much of the work involved in carrying out most of the trials.

**REFERENCES**


