

## Phosphate research at Wagga Wagga

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I believe that the question 'How much phosphate is required by crops and pastures in the wheat-sheep zone of southern N.S.W.?' has been answered by research conducted over the period 1960 to 1980. To support this the following guide and reference list is given.

The guide to phosphate requirements:

- Paddock pasture history. Vigor and composition of a pasture may indicate the general level of nutrients (22,16).
- District average responses to applied phosphate. Because these are based on large numbers of trial comparisons over numerous seasons they provide a good indication of the average responses (20,25).
- Soil phosphate status. An initial soil test will (a) 'put you on scale' (20,22); (b) provide a basis from which to plot trends for a specific situation (18,23); (c) help detect other soil problems such as increasing acidity.
- Estimating losses of phosphate in grain. Wheat grain contains about 0.25% phosphorus or 2.5 kgP/tonne. In addition phosphate is required for the vegetative parts of the plant, to raise soil phosphate to offset years when no fertilizer is applied, and any losses due to fixation by the soil or erosion (26,27). Computer programs which consider these factors may assist.
- Test strip checks to assess the conclusions from the above.

This is not to say that phosphate research should cease. Increases in the cost and decreases in the quality of fertilizer phosphate, changes in soil acidity and salinity, and use of reduced tillage and stubble retention lead to a need to examine the above recommendations and the consequences of over-or under-fertilizing in the short and long term. We should also seek genetic material that is more efficient with respect to phosphate in specific situations.

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