



Department of  
Agriculture and Food



Journal of the Department of  
Agriculture, Western Australia,  
Series 4

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Volume 25  
Number 3 1984

Article 10

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1-1-1984

# The extension programme

W K. Russell

G. K. Palmer

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## Recommended Citation

Russell, W K. and Palmer, G. K. (1984) "The extension programme," *Journal of the Department of Agriculture, Western Australia, Series 4*: Vol. 25 : No. 3 , Article 10.

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# THE EXTENSIO PROGRAMME



**PEEL-HARVEY**  
Estuarine System

**By W. K. Russell**, Department of Agriculture, Harvey and **G. K. Palmer**, Department of Agriculture, South Perth

*From the start of the Peel-Harvey study in 1976, scientific research and extension have been closely linked. Trials, some involving major drainage works, have been set up on about 30 farms and several field days and seminars have been held.*

*The Peel-Harvey Study Group anticipates that farmer acceptance of the Department of Agriculture's recommendations will reduce the phosphorus input to the estuary by 30 to 40 per cent over the next three to five years. At the same time farmers will benefit from modified cultural practices better suited to the sandy soils of the coastal plain.*

The extension programme aimed at modifying fertiliser use, however, has not always been free from problems.

- Farmers have been applying superphosphate for the sulphur it contains and not always for its phosphorus. The need for the two nutrients has to be clearly separated.
- There is no sulphur fertiliser without phosphorus which can be applied with existing equipment at the start of the plant growing season.
- Many farmers are still reluctant to use the result of a soil test in deciding how much fertiliser to apply to each paddock.
- Farmers want to apply fertiliser before the break of the season when the ground is not waterlogged. This can conflict with the best agronomic time—when this is known—to apply different nutrients.
- Some farmers believe they are being 'blamed' for polluting the estuary and that their interests would be sacrificed in finding a solution.

There has to be a balance, therefore, between fertiliser practices acceptable to farmers and those which will reduce phosphorus loss to drainage.

## The programme

The extension programme started in August 1982 and initially focused on farmers on the Harvey River catchment south of Pinjarra. Now farmers on the entire coastal plain catchments of the Murray, Harvey and Serpentine Rivers are in the programme.

The problems, the research and potential solutions were widely featured in the media. In addition, two publications were produced to inform farmers and other interested people of the work being done in the area. *Catchment Study Update* presents detailed reports on different aspects of the study, particularly those directly affecting farmers. *Catchment News* is a single-page topical newsletter which discusses aspects of the extension programme. It is sent mainly to farmers.

Local experience of farming the sandy soils has been useful in planning the research programme. Small discussion groups were formed among farmers throughout the catchment areas. These groups meet regularly to discuss the research and extension programme and help to organise public seminars.

Advisers and researchers at the Department of Agriculture—particularly those from the Harvey and Metropolitan district offices—spent many hours with farmers, discussing the new fertilisers and strategies and assessing how much fertiliser farmers needed on each paddock.

The Department of Agriculture offered a free soil testing service from 1983. By the end of May 1984, almost every farm on the coastal plain catchment had been tested. Follow-up visits were made to discuss fertiliser recommendations based on the soil samples. More than 450 farmers are now involved in the testing service.

The availability of alternative new fertilisers, their costs and the nutrients they contain influenced how readily they were used by farmers.

The only modified fertiliser available in 1983 was Coastal Superphosphate. It was recommended mainly on the deep grey Bassendean sands. On all other sands, superphosphate was the recommended source of phosphorus and gypsum was the cheapest source of sulphur.

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Because gypsum was difficult to handle, superphosphate or Coastal Superphosphate effectively became the recommended source of sulphur. However, Coastal Superphosphate was available only from Picton and farmers who normally bought their fertiliser from Kwinana were disadvantaged. These factors restricted the wider use of Coastal Superphosphate in 1983.

In 1984 New Coastal Superphosphate with sulphur and potash was produced and recommended for use on all sandy soils with high soil phosphorus levels. There are only a few soils on which phosphorus levels are very low and where superphosphate is cheaper per hectare than New Coastal Superphosphate. The possible introduction of granulated gypsum in 1985 would give farmers further incentive to change from ordinary superphosphate. This would further reduce the amount of phosphorus applied to most farms.

### Follow-up survey

In a survey of 100 farmers participating in the 1984 soil testing programme, 60 per cent used New Coastal Superphosphate when recommended. Another 10 per cent used either no fertiliser or only gypsum. These changes substantially reduced the amount of phosphorus applied throughout the survey area.

Gypsum was the first recommendation for many farmers, but its use was not practical on most farms. Even when sulphur was the only plant nutrient needed, New Coastal Superphosphate became the effective recommendation.

Farmers gave two main reasons for not following the fertiliser recommendations. The soil test results arrived too late for them to change their fertiliser programme and the recommendations were too expensive. Many farmers were recommended to use more potassium fertiliser than they were accustomed to, thus adding to fertiliser costs.

The survey demonstrated that farmers were not prepared to use gypsum in its present form. As a source of sulphur, gypsum is about a fifth the price of superphosphate. It is difficult to spread with existing equipment and, to be effective, it has to be spread in late winter-early spring when plants need it most. Almost half the farmers surveyed said they would use a 'spreadable' gypsum if it could be applied at the break of the season.

■ Farmers attending a field day at Merredith Drain. Inset: Measuring phosphorus levels deep in the subsoil.



### Cost savings

The introduction of New Coastal Superphosphate in 1984 has helped to overcome the lack of a sulphur-enriched superphosphate. Some of the money saved on phosphorus fertiliser can be used to increase the amount of potassium applied. Although there may not be a big reduction in the fertiliser bill on many farms, the money is being spent more effectively.

The extension programme aims to help farmers make more effective use of their fertiliser dollar by applying plant nutrients in the most useful form, at the optimum time and to only apply them if they are needed.

Farmers are facing continuing cost pressures. It is becoming less and less economical to spread one fertiliser over the whole farm at the same rate every year just because it has always been done this way. Fertilisers are too expensive to be used indiscriminately. Their use has to be based on plant needs and the expected return from using them.