

MODIFYING FERTILISER APPLICATION RATES When Low Rainfall and Tough Economic Conditions Prevail



by Richard Stone, Field Operations Manager NSW, Australia

The vagaries of climate have always been an integral part of broadacre cropping, but with rising costs, accompanied by little rise in commodity prices, the margin for growing a successful crop shrinks, and new methods of farming and fertilising need to be considered in order for financial viability to be maintained. IN79 examines this dilemma, and explores the position often faced by farmers and growers when they manage difficult periods of productivity because of adverse climatic and economic conditions. This is an important subject and you are invited to read the views of one of RLF's seasoned team members with many years of practical experience and knowledge. View in full [here](#).

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What's in this Insight

This IN explores the position often faced by farmers and growers when they manage difficult periods of productivity because of adverse climatic and economic conditions. There are always difficult years imposed by low rainfall and other seasonal conditions that place stress on farm budgets. Can input costs such as expenditure on fertiliser be reduced by modifying application rates to help out at these times?

This IN seeks to answer this question.

Preface

Following a run of abnormally dry seasons and/or economic downturns, many dry-land broadacre farmers find it increasingly difficult to grow an economically viable crop.

The vagaries of climate have always been an integral part of broadacre cropping – but with rising costs, accompanied by little (if any) rise in commodity prices – the margin for growing a successful crop shrinks, and new methods of farming and fertilising need to be considered in order that financial viability is maintained.

In response to this dilemma, farmers and growers often ask if it is possible to reduce fertiliser rates, (or even do without fertiliser altogether in some situations), and still be able to grow a successful crop? The answer to this is not a simple yes or no, however what may be called for, and can prove useful, is a different approach to traditional methods. Most farmers, with a lifetime of growing experience of always planting with phosphorus, react cautiously to fertiliser routine modification, and continue to apply phosphorus with the seed.

However in tough economic times, or with below average seasonal conditions, there may be a case for fertiliser reduction – and in some cases even exclusion of applied phosphorus (P) from cropping systems.

By providing both scientific and anecdotal evidence from practical broadacre situations, this IN seeks to promote the discussion for modifying P application, to varying degrees, in cases of financial and climatic deficiencies.

Generally, Australian soil in its native state is low in P. But with the advent of super-phosphate, and today's compound fertilisers such as MAP and DAP (and the relative ease of their application), in many case P levels have risen – and especially so following a run of low yielding years caused by below average rainfall with its consequence of less loss, or leaching of the fertiliser.


Stored P in the soil is good news for farmers providing it can be extracted from the soil and utilised by the plant.

It should be remembered however, that there is always a range of individual factors involved in planting a crop, so considered review of all evidence, questioning and perhaps even trialling, is encouraged before embarking upon wholesale changes.






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The follow discussion promotes the proposition of modifying the application of P.

Case histories and demonstration trials from the Nyngan District of New South Wales, Australia are referenced throughout this publication.



Promoting the Proposition

Questions to Ask before Modifying Phosphorus Application

In appraising individual circumstances, it would be beneficial to know the answer to the following questions :

1. What is the level of P in my soil ?
2. What is the availability of P in my soil (PBI) ?
3. What physical restraints are there to P uptake in my soil ?
4. What chemical restraints are there to P uptake in my soil ?
5. How much fertiliser can I afford ?
6. What is my target yield, in relation to the financial return I require in order for the bills to be paid ?

All are very sensible, basic and common-sense questions, and together they are the important building blocks to embracing the changes needed to bring about potentially better financial outcomes.


Individually, the questions are expanded upon as follows :




- **What is the level of Phosphorus in my Soil ?**

Phosphorus levels vary with different soil types, farming practices and varying P application rates.

The soils around Nyngan for instance, (in mid NSW) are in the most part red clay loams, that are quite stable in physical character and suited to large-scale broadacre farming. We know that the limiting factors for growing high yielding crops are moisture and temperature, and with this in mind some caution has to be exercised when spending funds on fertiliser.

Generally the red soils are low in nitrogen, high in potassium and low in trace elements, so there is a case for restricting soil testing to simply undertaking an audit of P, and looking after the trace minerals with seed priming and foliar applications which include nitrogen as well.



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