The extent of acid soils in the cropping region of north-eastern Victoria

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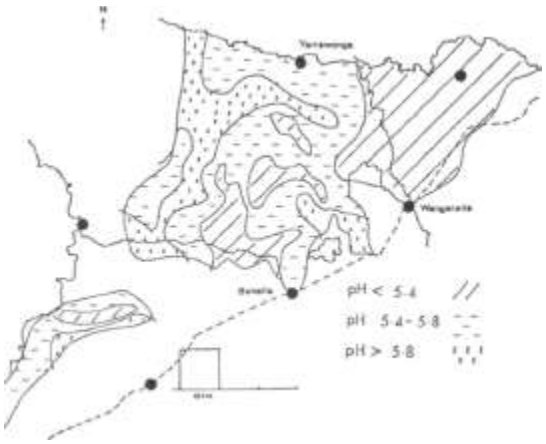
Soils in the north-eastern Victorian cropping region are mainly acidic and duplex, with sandy-loam to sandy clay loam texture. It has been recently recognised that excessive acidity may restrict the growth of field crops, and on many of these soils lime has increased the grain yields of a range of crops (1, 2, 3]. In this paper we report the extent of acidic soils in this region.

Methods

The extent of acidic soils is estimated from 312 soil samples taken during the period 1980-1986 from experimental sites and farmers' fields. The samples were taken with a 3 cm corer to a depth of 10 cm; usually 10-20 samples were taken per site and bulked. The samples were not taken on a grid basis, however the sampling was sufficiently dispersed to allow derivation of pH isolines (4). The pH contour range selected was pH<5.4, pH 5.4-5.8 and pH>5.8. The percentage of soils in each of these categories could thus be calculated. The soil pH was measured in a 1:5 soil-water suspension.

Results and discussion

The distribution and amount of cropping land in the 3 pH categories is as follows: pH<5.4 - 36.7%, 146,400 ha; pH 5.4-5.8 - 44.8%, 178,600 ha; pH>5.8 - 18.5%, 73,600 ha. The location of these categories is shown in the following figure.



With 36.7% of this cropping area strongly acidic, using crops with tolerance to acidic conditions plus liming is widely practiced. However, some of these acidic soils only give minimal yield responses to lime (2). So the use of such a pH distribution map can only have limited value for predicting the likelihood of lime responses. It is therefore essential that lime requirement tests with good predictive reliability be available.

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