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FERTILISER RECOMMENDATIONS —REVISED EDITION

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The East of Scotland College of Agriculture
Crop Division

Fertiliser Recommendations

Revised Edition

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ERRATUM - BULLETIN NO 28
FERTILISER RECOMMENDATIONS

Page 5 How to cope with metrication

eg on No 4 should read

To apply 120 kg N therefore requires $\frac{120}{20} \times 100 = 600$ kg

GRASSLAND MANURING

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NOTES ON RECOMMENDATIONS

MAIN PLANT NUTRIENTS CONTAINED IN FERTILISERS

N	NITROGEN
P ₂ O ₅	PHOSPHATE
K ₂ O	POTASH

FERTILISER RECOMMENDATIONS—given in KILOGRAMMES PER HECTARE (kg/ha) and (units per acre)

Analyses shown on each 50 kg bag as percentage N, P₂O₅ and K₂O.

For example:—

20:10:10 on a bag means it contains 20% N, 10% P₂O₅, 10% K₂O.

This means that each bag contains:—

10 kg N	20 units N
5 kg P ₂ O ₅ OR	10 units P ₂ O ₅
5 kg K ₂ O	10 units K ₂ O

HOW TO COPE WITH METRICATION

The calculation of tonnes of fertiliser required, the number of bags per field and per hectare and the calibration of the spreader are more easily done in metric.

1. Convert all field acreages to hectares (multiply by 0.4).
2. Select your rate of fertiliser in kg N, P₂O₅ and K₂O per hectare (see page 7),
e.g. 120 kg N, 60 kg N P₂O₅, 60 kg K₂O.
3. Decide on the most appropriate compound fertiliser,
e.g. 20:10:10.
4. Work out the number of 50 kg bags required per hectare on the basis of N requirement.
e.g. To apply 120 kg N therefore requires $\frac{120}{50} \times 100 = 600$ kg fertiliser per hectare.

Each bag contains 50 kg

Therefore $\frac{600}{50} = 12$ bags per hectare are required.

CONVERSION TO IMPERIAL

To convert kg per hectare to units per acre multiply by 0.8
e.g. 1.25 kg/hectare multiply by 0.8 = 1 unit per acre.

To convert 50 kg bags per hectare to cwt per acre multiply by 0.4
e.g. 2.5 (50 kg) bags/hectare multiply by 0.4 = 1 cwt per acre.

USING THE TABLES

1. **ARABLE CROPS:—pages 28-33 Tables 1, 2 and 3**

Choose the most appropriate table from the farm type description given at the top of each table.

VEGETABLE AND BULB CROPS:—pages 34-35, Table 4

SOFT FRUIT:—pages 36-37, Table 5

GRASSLAND:—pages 40-45, Tables 6, 7 and 8

Decide which nitrogen policy is required for established grass—see page 33—and refer to appropriate table for High, Moderate or Low nitrogen input.

HILL SWARD IMPROVEMENT:—pages 46-47

2. Refer to the crop for which a recommendation is required and the appropriate place it occupies in a crop rotation.

Read off the recommendation for Nitrogen (N) Phosphate (P_2O_5) and Potash (K_2O).

Check the need to make adjustment:—see back fold out page.

3. Having made any necessary adjustments to the recommendation, choose a fertiliser and calculate the rate to provide these amounts of N, P_2O_5 and K_2O .

Where the recommendation for all three nutrients cannot be met exactly by available compounds, choose a fertiliser which provides the correct amount of nitrogen.

4. Recommendations are based on the assumption that the full programme of advice is used throughout the rotation.

SOIL ANALYSIS

Routine soil analysis indicates the pH, lime requirement, and levels of available phosphorus, potassium and magnesium in the soil. Where necessary, the organic matter content and the level of essential trace elements can also be measured.

Because the soil in most fields is extremely variable, the samples must be taken in the prescribed manner to ensure that they are as representative as possible of the whole field.

Samples for analysis should be taken either before or at least 3 months after applying fertiliser, and two years after liming.

The recommendations in the bulletin are based on moderate levels of phosphorus and potassium in the soil. Soil analysis can be used to identify those soils where the levels are much higher or lower than moderate and therefore where stated fertiliser recommendation can be profitably adjusted.

The following table is a guide to the adjustments which should be made when the soil is low in phosphorus and/or potassium. Savings on fertiliser are possible when soil levels of phosphorus and potassium are above moderate, but it may be preferable to apply recommended rates of P and K to maintain the soil P and K status. When in doubt consult your adviser.

PHOSPHORUS	
Crops	Soil Status Low
	kg/ha (units/ac) P ₂ O ₅
Cereals, peas, beans, grass	+ 30 (+ 24)
Potatoes, swedes, kale, oil seed rape	+ 50 (+ 40)

POTASSIUM	
Crops	Soil Status Low
	kg/ha (units/ac) K ₂ O
Cereals, swedes, peas, beans, oil seed rape	+ 30 (+ 24)
Grass, kale	+ 50 (+ 40)
Potatoes	+ 60 (+ 48)

EFFECT OF WEATHER ON RECOMMENDATIONS

ANNUAL RAINFALL

The recommendations made in tables 1 - 3 have taken into account the amount of rainfall normally associated with each farm type—eg, drier for a cash-cropping system and wetter for a grass-arable system. There are exceptions to this, and adjustments are recommended as follows:—

Intensive cash-cropping in areas of higher rainfall than normal for this system—reduce nitrogen rates by 25 kg/ha (20 units/ac).

Grass-arable farms in dry areas—increase nitrogen rates for arable crops by 25 kg/ha (20 units/ac).

WINTER RAINFALL

The residual nitrogen in the soil depends on the previous cropping and on drainage losses during winter. Little residual nitrogen can be expected after long runs of cereals, but after ploughed-in grass, folded crops, or crops heavily fertilised and in all cases where grass forms about half of the rotation, residual nitrogen can be expected: To adjust for differences in the loss of this residual nitrogen during the winter, about 25 kg N/ha (20 units/ac) can be added to the fertiliser recommendation after a wet winter and deducted from the recommendation after a dry winter. As a guide, wet and dry winters can be regarded as those with about 70 mm (2½ in) of rain above or below the average for the period October to February inclusive.

VERY WET SPRINGS

If excessive rain in spring leads to drainage flow and loss of nitrogen already applied, a top dressing of 25 - 40 kg N/ha (20 - 32 units/ac) should be given to replace the loss.