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North Idaho Fertilizer Guide

PEAS and LENTILS

These fertilizer guidelines have been developed by the University of Idaho and Washington State University based on relationships between soil tests and crop yield response. The fertilizer rates suggested are based on research results and are designed to produce above average yields if other factors are not limiting production. Thus, the fertilizer guide assumes good management.

The suggested fertilizer rates will be accurate for your field provided (1) the soil sample was properly taken and is representative of the areas to be fertilized; and (2) the crop and fertilizer history supplied is complete and accurate. For help in obtaining a proper soil sample, refer to University of Idaho CIS No. 162, *Soil Sampling*, or confer with your Extension Agricultural Agent.

NITROGEN (N)

Peas and lentils are legume plants which are capable of fixing part of their own nitrogen from the atmosphere. In addition to this symbiotic nitrogen fixation, the soil can supply some nitrogen from residual nitrogen fertilizers and decomposition of organic matter. Thus, nitrogen applications on peas and lentils in most cases have not been profitable. Some contractors recommend about 20 pounds nitrogen per acre to improve the quality of processing peas.

PHOSPHORUS (P)

Phosphorus should be incorporated into the seedbed by whatever method is most convenient for the grower. Acceptable methods include broadcast and plow-down or disc-in, band or drill with seed. Be careful not to allow direct contact between the seed and the fertilizer as peas and lentils are extremely sensitive to excess salts during germination. If heavy applications are required to correct nutrient deficiencies, they should be applied before or during seedbed preparation.

Phosphorus needs can be determined effectively with the aid of a soil test (Table 1).

Table 1. Phosphorus (P) fertilizer rates based on a soil test.

Soil test* (0-12 inch)	Apply (lb./acre)	
ppm P	P_2O_5	P**
0 to 2	60	26
2 to 4	40	18
over 4	0	0

*Sodium acetate extractable PO_4-P

**P_2O_5 X 0.44 = P or P X 2.29 = P_2O_5

POTASSIUM (K)

Potassium should be incorporated into the seedbed by whatever method is most convenient for the grower. Acceptable methods include broadcast and plow-down or disc-in, band or drill with seed. Do not allow direct contact between the seed and the fertilizer as peas and lentils are extremely sensitive to excess salts during germination. If heavy applications are required to correct nutrient deficiencies, they should be applied before or during seedbed preparation.

Potassium needs can effectively be determined with the aid of a soil test (Table 2).

Table 2. Potassium (K) fertilizer needs based on a soil test.

Soil test* (0-12 inch)	Apply (lb./acre)	
ppm K	K_2O	K**
0 to 50	80	66
50 to 75	60	50
over 75	0	0

*Sodium acetate extractable K

**K_2O X 0.83 = K or K X 1.20 = K_2O

SULFUR (S)

Sufficient amounts of sulfur are necessary for maximum production of peas and lentils.

A soil testing less than 10 ppm SO_4-S should receive 15 to 20 pounds of sulfur per acre. Excessive applications of sulfur can result in increased vegetative growth and decreased yields.

MICRONUTRIENTS

Peas and lentils grown in northern Idaho have been shown to respond to boron (B) and molybdenum (Mo) micronutrients.

The need for boron can be determined by a soil test. A soil testing less than 0.5 ppm boron should receive 2 to 3 pounds of boron per acre. Boron can be toxic if application rates are excessive or if it is concentrated too close to the plant.

No soil test for molybdenum is available. Due to the possibility of toxicity, no molybdenum fertilizer should be applied unless a definite need has been established. Consult your Extension Agricultural Agent if you have a question on your soil level of molybdenum. Response to molybdenum has been erratic and is usually limited to acid soils and severely eroded areas. A seed treatment with molybdenum will usually overcome any molybdenum deficiency and is not likely to produce toxicity. Apply 0.5 ounce sodium molybdate to seed for each acre planted. A "sticker" is recommended to assure the salt adheres to the seed.

LIME

Lime applications on highly acid soils (less than pH 5.5) should be tried on a trial basis to determine if an economical response is possible. Legume crops grown on these soils will normally respond to lime applications.

STARTER FERTILIZERS

Starter fertilizers have not shown an economic advantage to the growers who have used them. They could be advantageous if used on cold, wet soils. If used, the fertilizer should be placed adjacent to the seed at planting. Do not allow direct contact between the seed and fertilizer as peas and lentils are extremely sensitive to excess salts during germination.

GENERAL COMMENTS

1. Early planting, both spring and winter varieties, is of utmost importance to maximum yields.
2. Use of peas and lentils in rotation reduces disease and weed problems which affect grain production.
3. Spring planted peas and lentils do best in a seed bed having a minimum of straw residue on the soil surface. Winter peas require a similar seed bed. However, due to erosion problems, higher amounts of surface residues are recommended to reduce soil erosion.
4. The seed bed should be of proper moisture level to prevent formation of large clods and prevent soil compaction. Avoid overworking the soil and creating a finely pulverized surface.

If you need further information on cultural practices, contact your Extension Agricultural Agent or obtain a copy of University of Idaho Bulletin No. 578, *Dry Pea and Lentil Production in the Pacific Northwest.*

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