



Wild Blueberry

FACT SHEET



Lowbush Blueberry Nutrition Series: Fertilizing with Nitrogen and Phosphorus

Fact Sheet No. 225, UMaine Extension No. 2094

Introduction

Before preemergence herbicides were available blueberry fields were fertilized with only small amounts of nitrogen fertilizer. Growers didn't want to help weeds grow, since weeds also respond to fertilizer. Weeds compete for light, moisture and nutrients and will lower blueberry yields. However, when growers used Terbacil[®] or Velpar[®] to control weeds, extra nitrogen did not increase yields. In this case, there was enough nitrogen in the soil for blueberry production.

Based on our surveys, most Maine blueberry fields have adequate levels of leaf nitrogen but low levels of leaf phosphorus (compared to the leaf nutrient standards set by University of Maine researcher Trevett in 1972 and Canadian researchers Lockhart and Langille in 1962). The standards are found in Wild Blueberry Fact Sheet No. 223, "*Lowbush Blueberry Series N-P-K*". Soil samples show that soil nutrient levels aren't always the same as leaf nutrient levels. For example, in some fields where soil phosphorus was low, leaf phosphorus was not low. This is why we don't make fertilizer recommendations based on soil samples.

To find out leaf nutrient levels, you need to sample your non-bearing fields at the tip-dieback stage of growth. Refer to Wild Blueberry Fact Sheet No. 222, "*Leaf and Soil Sampling Procedures*" for detailed methods on leaf and soil sampling.

Results of Fertilizer Experiments

Researchers have experimented with Diammonium phosphate (DAP) and phosphorus (P) fertilizers since 1987 to determine the relationship between fertilizers, leaf nutrients and blueberry yield. The top graph shows results from one study on eight fields over two years. The bottom graph gives data for one field over four years.

The top graph shows that leaf phosphorus (P) will increase above the standard of 0.125 percent leaf P with DAP fertilization but will begin to level off at 200 lb/a DAP. These lines represent an average response. In other words, some fields had higher or lower leaf P and yields. Studies with P alone showed the same trend, but yields were lower. In this case Nitrogen (N) was necessary to get a higher yield.

The bottom graph also illustrates that leaf P and yield will increase with DAP. It also shows that an increase in leaf P does not guarantee an increase in yield: the leaf P was higher in 1991 than 1989, but the yield was lower in 1992 versus 1990. This tells us that factors other than fertilizer have an effect on yield. Pollination, moisture and winter injury affect yield.

Fertilizer Rates

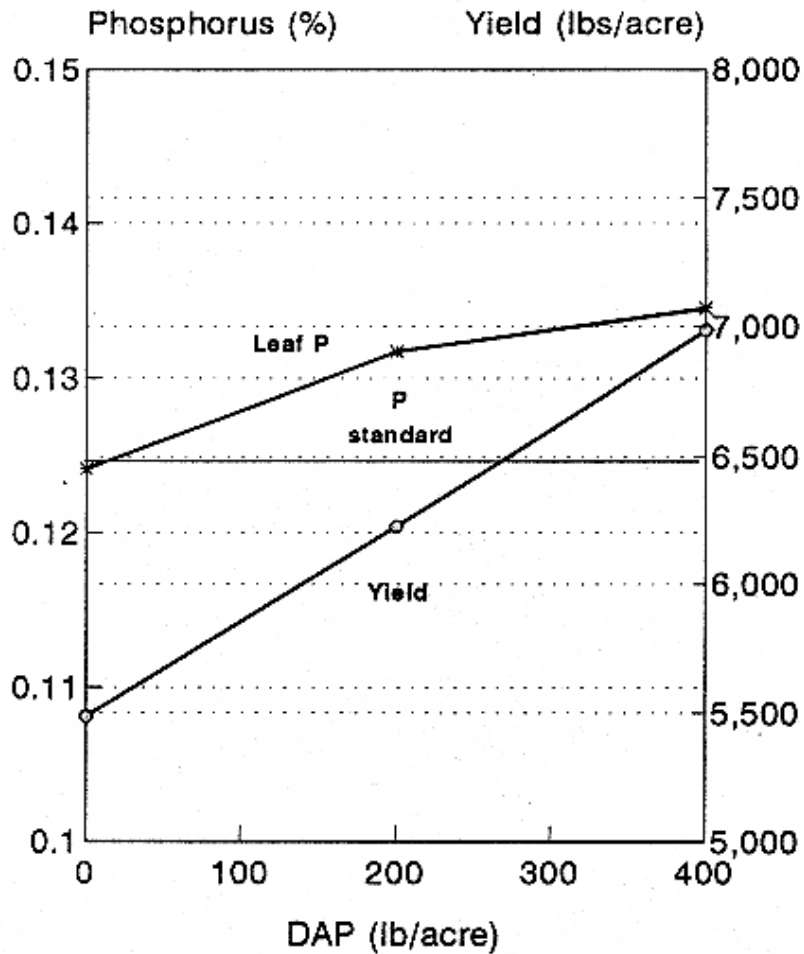
- Be sure to have good weed management if you use fertilizer. Refer to Wild Blueberry Fact Sheet No. 236, "*Weed Management in Lowbush Blueberry Fields*" for more information.
- Use leaf Nitrogen and Phosphorus levels as a guide:

- **Low leaf N only:**
If leaf N level is below 1.6%, apply N (urea) up to 50 lb/a. If leaf N level is above 1.6%, lesser amounts or no N is needed.
- **Low leaf N and P:**
If leaf P is below 0.13% and leaf N is at or below 1.6%, apply DAP up to 400 lb/a.

If leaf P is below 0.13% and leaf N is well above the 1.6% standard, apply monoammonium phosphate (MAP), which provides half the amount of N compared to DAP. Use MAP if plants have extra growth or have winter injury.

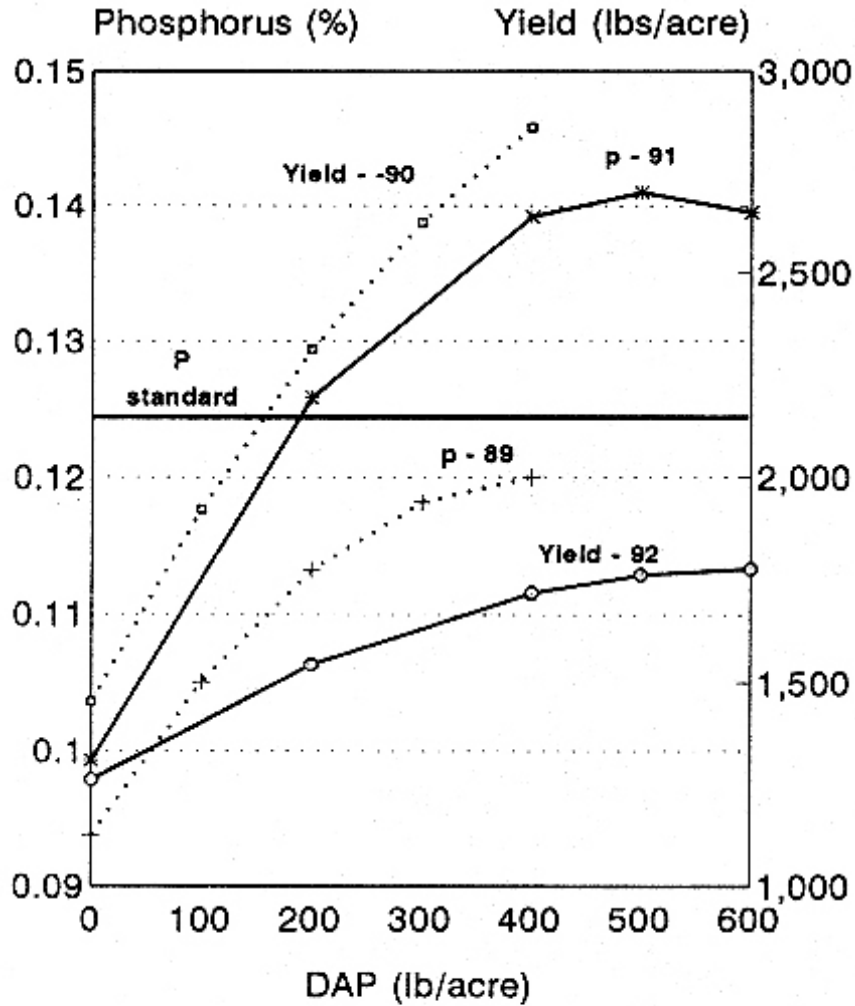
- You can use fertilizer with N, P and potassium (K), but note that K will not increase yield. The form of N provided should be *ammonium* nitrogen *not nitrate* nitrogen.
- Every field is different. Keep records of leaf P and N values, fertilizer rates and yields to help you track when production is leveling off or declining. Leave an untreated strip in your field to compare to fertilized areas.

EFFECT OF DAP FERTILIZATION ON LEAF P AND YIELD*



*quadratic, ave. 8 locations

EFFECT OF DAP FERTILIZATION ON LEAF P AND YIELD*



*quadratic

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