



GUIDELINES FOR BLUEBERRY PREPLANT PREPARATION

By

William D. Jones

Introduction:

Blueberry, *Vaccinium* spp., particularly the more recent Southern Highbush varieties have become a popular new crop for California growers in recent years. Successful Blueberry establishment in California depends upon a number of factors including variety selection and correct preplant preparation practices.

Blueberry is characterized by a rather narrow range of adaptation, particularly for soil physical and chemical properties, as compared with other, more traditional California crops. Within this narrow range of adaptation, Blueberry is capable of quite vigorous, robust growth and development, resulting in excellent productivity. Outside of the range of adaptation, Blueberry performance can be quite poor, indeed.

The purpose of this communication is to touch upon some of the pertinent analytical factors in Blueberry preplant preparation practices, to help insure the development of successful California Blueberry farm enterprises. Such factors are often not visually obvious and can be characterized only by appropriate analytical procedure.

Understand that this is not a comprehensive treatment of all factors influencing Blueberry establishment, but does try to highlight some of the more important factors for your consideration and planning. It is always wise to consult your Blueberry establishment expert to resolve specific issues.

Irrigation Water Quality:

The chemical constituents of each irrigation water source, well, reservoir, canal should be determined prior to initiating any Blueberry planting. Irrigation water chemistry should be evaluated to insure that such water possesses desirable water chemistry for use as irrigation for blueberries. Constituents of particular interest include sodium, chloride, boron and bicarbonate, to all of which, blueberries are quite sensitive. Water electrical conductivity (EC_w, salinity) and water pH are also of interest, as is the adjusted sodium adsorption ratio (SAR adj.) Note that for many of these constituents, the upper limits appropriate for Blueberry are lower than those for many other traditional crops. Comprehensive water testing should be considered the first priority in the evaluation process for any potential blueberry planting site.





Page 2

Guidelines for Blueberry Preplant Preparation

Soil Texture and Physical Properties:

Blueberry requires superior soil drainage and good internal aeration, as well as good water holding capacity. Ideally, the soil should be SANDY LOAM in texture. Total Porosity should ideally be greater than 50 %. Most native agricultural soils do not possess such high total porosity. Still, any impediment to adequate drainage and/or aeration should be resolved during preplant preparations. If a soil cannot be altered to obtain desirable physical properties, then another planting site with more suitable physical properties should be selected.

It is important to know that the physical properties both prior to amendment addition and after amendment addition has been completed can be measured by use of appropriate analytical procedures. Use of appropriate analytical procedures to evaluate soil physical properties can save money and in some cases help to avoid serious error, where the proposed planting site cannot be adjusted sufficiently to insure necessary physical properties to obtain a vigorous, productive blueberry planting.

Subsequent blueberry vigor, productivity and YIELD depend upon obtaining desirable physical properties during the preplant preparations. It is difficult or impossible to obtain sufficient improvement in soil physical properties after the field has been planted. The best, most opportune moment to adjust soil physical properties is during the preplant preparation phase, prior to planting the field.

Soil Acid Requirement:

A specific analytical procedure, SOIL ACID REQUIREMENT, is employed to determine the amount of soil sulfur and/or sulfuric acid to apply to the field to obtain the desired soil pH adjustment. Blueberries prosper within a soil pH range of 4.8-5.2. This analytical procedure is employed to determine the acid requirement for the specific planting site of interest. Use of this procedure, eliminates substantial guesswork, that could otherwise jeopardize the new planting.

Organic Amendment Evaluation:

Blueberry fields benefit from substantial addition of organic amendment. All organic amendments are not the same. Ideally, the organic amendment selected for use in preplant preparations for blueberries should be derived from wood – residual type materials, such as sawdust or bark. Use of manure, green waste, or compost is not recommended.



Page 3

Guidelines for Blueberry Preplant Preparation

The organic amendment should be evaluated by suitable analytical procedures for:

- a) apparent bulk density
- b) particle size distribution
- c) % organic matter content
- d) carbon: nitrogen ratio
- e) total and available fertility
- f) pH and salinity

among other parameters to insure that the material employed is desirable and capable of obtaining the desired physical properties changes in the native site soil.

It should be appreciated that the wood residual organic amendment should ideally be species specific, since different wood species have different half-life residuals. Selection of some wood residual organic amendments with short half life residuals will result in little or no long lasting benefit to the soil being treated.

Soil Fertility:

Soil fertility is the feature most within our control. We have the greatest opportunity to alter soil fertility by our agricultural practices. These adjustments should be made on the basis of suitable soil analysis at the outset of the project, with conformance testing at opportune times during the development of the project.