ISP technologies

environmentally clean crop production for healthier food

Hops

(Rates Based on "Per Acre" - Irrigated)

Hops are a perennial herbaceous vine that begins anew every spring from the large swollen roots. This provides us with several critical points to get plant nutrients applied for the greatest yield of the highest quality cones while boosting powdery mildew and insect management. Hops grow best in well-drained soils rich in organic matter at a pH of 6.0 – 6.5. Growers should focus on working to keep organic matter levels between 5% to 7%.

It should be noted that this program is presented as a guideline only based upon research and the experiences with a number of growers. With the wide variances possible from both soil types and environmental conditions present during any particular season, your actual recommendation can vary from what is presented. It is always advisable to discuss actual management practices with your local ISP specialist.

Dry or Bulk Fertilizer: It is recommended to gather a soil sample and have it analyzed to determine the native fertility of your soil. This will aid in determining what bulk nutrients need to be applied to your soil helping to ensure an outstanding crop. Nutrient requirements for hops will range from 90 to 100 units of nitrogen, 20 to 30 units of P_2O_5, and from 80 to 150 units of K_2O per acre. Season nitrogen recommendations will vary by specific variety. All varieties will require at least 90 units of nitrogen per season for optimal production, and some varieties can utilize up to 150 units N. Hops vines are heavy users of potassium as well. The majority of the potassium will be used by the cones, although there will be a significant amount left in the vines after cone removal. Composting the spent vines makes good sense, and application of well-made hop vine compost will help to cycle nutrients on your farm as well as aid in maintaining higher organic matter levels.

Granular mineral fertilizers should be applied before the new vines emerge in the spring. Apply approximately 50% of the expected nitrogen and potassium needs for the season at this time (45 to 75 units N, and 40 to 80 units of K_2O per acre). Approximately 30 days after the vines emerge from the soil begin fertigating with ISP Technologies 'Hops Special" 20-5-15 at #25 per week per acre until the onset of cone growth (burr stage) in Mid-July.

Growth Stimulant: Broadcast or band over the rows; Post planting as the vines are beginning to emerge, apply 12 -16 fluid ounces MetaboliK HV-1 and 64 fluid ounces PhytoGro Xtra (humic acids) to aid with more rapid trellis fill and increased plant vigor. These products may be incorporated into herbicide applications.

New Planting Transplant Mix: 8 pounds10-45-10; 24 fluid ounces Phytogro Xtra; and 16 fluid ounces Metabolik SB per 100 gallons of solution. Water all new plantings in thoroughly with this solution.

Tissue test once the vines are 5-6' from the ground. A proper hops tissue test consists of 30 - 50 leaves using the 5th leaf in from the tip. Use the analysis results to adjust N, P, K, Ca and Mg levels and look for micronutrient imbalances. Some Colorado hops growers will test 3 times; in early June, mid-June, and late June.

Hops are highly susceptible to powdery mildew. The addition of ISP SiMag58 and SiGuard as part of your regular disease control applications has proven to boost the efficacy of your control materials.

Note on composts and mulch: some mulching materials can have huge impacts on soil acidity. Be especially careful with wood chips, hardwood bark and sawdusts as these materials can push soil pH way up creating a Mn toxicity. Use only well composted mulching material that you've had tested prior to application.

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The program outlined below is designed to not only encourage aggressive vine growth, but to also improve cone set and size, as well as enhancing the production of the essential resins and oils that determine crop quality.

Stage	ISP Soluble Plant Foods Per Acre	Other Notes, micronutrients, calcium, magnesium
Pre-greenup	Granular fertilizer as necessary	
Vine Emergence	12 fluid ounces MetaboliK HV-1, & 16 fluid ounces PhytoGro Xtra.	Broadcast or banded, can be mixed with herbicides, and other pesticides.
30 Days Post Emerge	25 pounds 20-5-15 Hops Special	Fertigate weekly until the onset of cone growth (burr stage).
Cone Initiation	15 pounds 10-20-20, 4 fluid ounces MetaboliK HV-1, SiGuard.	Foliar application with disease control products. SiGuard at 2 teaspoons per 100 gallons of total spray solution.
Cone Growth and Maturation	15 pounds 4-18-38, 4 fluid ounces MetaboliK HV-1, 16 fluid ounces PhytoGro Xtra, SiGuard.	Foliar application with disease control products to aid in the production of essential resins and oils. Apply twice if possible, spaced 10 days apart. SiGuard in all nutrient and crop protection sprays, 2 teaspoons per 100 gallons of total spray solution.

The quality of hops vines begins the season before as the plants are going dormant. Apply Restore 3G at 3 gallons to the acre to help refresh the soil from the prior seasons extremes. This along with proper composting will greatly improve the soil food web and increase root vigor, thus building high potential for your hop yard for next season.