



Pacific Natural Organic Fresh Fish Fertilizer



Fact Sheet for Blueberry Growers

Pacific Natural is an organic liquid fertilizer/bio-stimulant and soil amender produced by Great Pacific BioProducts Ltd. made from fresh fish biproducts. Pacific Natural's use of low temperature enzymatic hydrolysis in its production process enables the natural proteins, nutrients and vitamins present in the fish to stay in their original form where they are more readily available to the microbial life in the soil and for absorption and use by plants. Other processing techniques used to produce fish emulsions and fish meals/powders cause these beneficial ingredients to be denatured through exposure to high heat, or stripping of most of its original protein and oil content.

Benefits of using Pacific Natural

- Provides a longer lasting time release effect due to its inherent oil content and complex proteins, amino acids and essential fatty acids (Omega 3's), unlike fish emulsions.
- Enhances biological activity in the soil by providing natural organic nutrients, proteins, minerals and oils.
- Acts as a food source to soil microbes which accelerate the natural composting process of after-harvest residues, cuttings and other tied up organic and inorganic matter in the soil.
- Is approved for use in agriculture for organic food production and is certified by the Organic Materials Review Institute (OMRI).



Blueberry Specific Information

Several customers of Great Pacific BioProducts Ltd. are blueberry growers who have had very positive results when using Pacific Natural. Here are some of the improvements blueberry crops have displayed since growers implemented a fertilization program that included Pacific Natural.

A grower in B.C:

- This conventional grower has been using Pacific Natural as the ***only*** source of N-P-K for his blueberries for 3 seasons.
- His production/yield has been equal to or better than that of neighbouring blueberry farms.
- His plants immune systems have improved, resulting in a noticeable decrease in specific disease pressures, compared to others.
- The cost of his fertilization program has decreased.
- **Application Rates** of Pacific Natural have been:
 - Foliar feeding, spray on every 10-14 days from new growth in spring, stop through flowering, resume through to approx. 2 weeks before harvest.



- Apply to runoff at concentration of 2-3 Liters fish per 100 L water
- Do another foliar application after harvest when leaves still green and able to absorb nutrients. Plant will move nutrients to root system for over-wintering and add nutritional value to soil (from runoff) as well as possible plant protection.
- Grower says diluted fish mixes with all other sprayer-applied products used during growing season

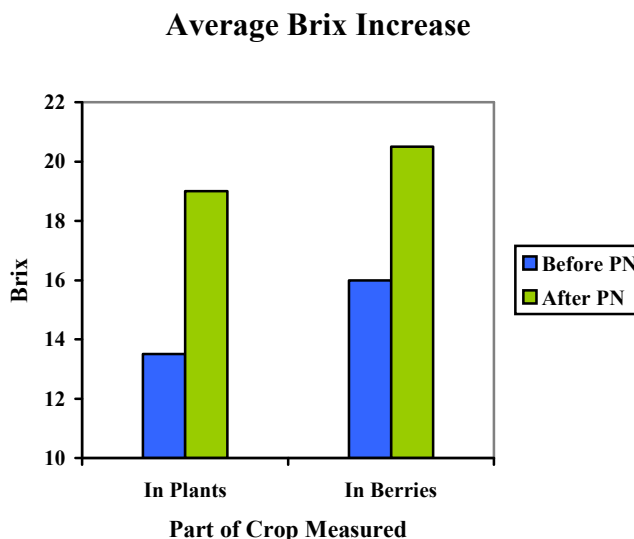
Grower in the Willamette Valley, Oregon, USA: Conventional grower moving to biological practices. Uses Brix measurements as his quality standard.

Brix measurements indicate the amount of soluble solids, including sugar, in a plant; it is measured using a refractometer. Increased Brix levels can mean increased shelf life, and a sweeter tasting product, which can translate into higher market value.

The Brix scale for blueberries (plant tissue) is as follows:

Poor: 6 Brix; Average: 8 Brix; Good: 12 Brix, Excellent: 14 Brix.

- After taking Brix measurements, it was noted that the plants had a 2-6 Brix increase with an average reading of 18-20 Brix **in his berries** since using Pacific Natural.
- The **plant tissues** displayed a sugar reading between 12-15 Brix, this improved to 18-20 Brix.
- Had an increase in production/yield of approximately 2-3 tons/acre, with his original yield at 4.5 tons/acre and increasing the following year to between 6.5 and 7.5 tons/acre. This was the biggest increase in yield he had ever experienced.
- Boxed berries sell for an average of US 70-80 cents/lb (2004), this farmer received over a \$1.00/lb.



General Application: apply Pacific Natural diluted with each spray application (apply to runoff, but excess will benefit soil nutrition, eventually feeding the plant) at approx. 50 parts water to 1 part Pacific Natural concentrate up to approx. 2 weeks before harvest. Do not apply during flowering stage as may interfere with pollination. Apply 1-2 gallons per acre per application.

Product can be ground applied in fall, spring or in season to root zone at rate of 5-10 gallons per acre, diluted 10 parts water to 1 part Pacific Natural. **A soil or foliar application post-harvest is highly recommended.**

Total requirements for season is approximately 10-15 gallons Pacific Natural concentrate per acre, divided among these applications including post harvest.

Growers report sweeter fruit, longer shelf life, no taste transference of product to fruit, and in some cases earlier harvest and premium pay for quality.

Manufactured by Great Pacific BioProducts Ltd.
7963 Webster Road, Delta, BC Canada V4G 1E4

T (604) 952-4333; F - (604) 952-4334 e-mail; mrenwick@telus.net; www.greatpacificbio.com