



## All-Purpose Soil Amendment (ASA): A Biologically Enhanced Soil Amendment and Fertilizer

ASA crop care solutions are naturally fermented products developed to improve soil health by specifically feeding beneficial soil microbes and improving soil moisture. ASA was developed with complex bioactive compounds that encourage optimal soil health so that plants can thrive regardless their environment. ASA contains amino acids (the building blocks of plant proteins) that serve as a food source for beneficial microbes in the soil; alginic acid (a complex carbohydrate) that also serves as a food source for beneficial soil microbes while improving soil moisture by mixing with certain molecules in the soil to form salts that swell and retain water when wet; and different types of saccharides (natural sugars) that feed bacteria in the soil, freeing up nutrients for plants.

ASA conditions the soil, promotes microbial life, stimulates root development, reduces the effects of drought and frost, and improves water retention in the soil. ASA is a naturally balanced source of minerals and essential nutrients containing natural occurring plant growth stimulants and hormones including cytokines, auxins, and gibberellins. By activating microbial activity in the soil, the nutrients in ASA become readily available. The following benefits make ASA an important complement to AgriBrew's product line:

Benefits for plants	Soil Health	Plant Establishment
<p>One of the most cost-effective ways to increase the size and storage life of any crop.</p> <p>Enhances root mass regardless of plant type.</p> <p>Natural and organic, making it right for any chemical-free growing environment.</p> <p>Boosts the efficiency of any soil or potting mix to get the most from a limited space.</p>	<p>Improves soil fertility.</p> <p>Increases activity and diversity of beneficial soil microbes.</p> <p>Improves soil moisture retention.</p> <p>Increases healthy populations of microbes in soil.</p>	<p>Creates bigger, stronger plant root systems.</p> <p>Improves the plant's ability to absorb nutrients.</p> <p>Increases capacity to store carbohydrates that are used to fuel plant growth and development.</p> <p>Enhances the formation of plant root nodules, which store beneficial bacteria that convert nitrogen into a usable source for the plant.</p> <p>Enhances the growth and uniformity of shoots including plant stems, leaves, and petals.</p>



## Why should I use ASA?

Growth, crop quality, and yield all depend on a strong plant with large, healthy root development. Multiple bioactive compounds found within APF help increase plant root growth and crop establishment including nutrient uptake, stress management, and post-harvest quality.

Nutrient Uptake	Stress Management	Post-Harvest Quality
<p>ASA helps make the best possible use of nutrients and in doing so, promotes improvement in crop yields and quality.</p> <p>ASA contains complex bioactive compounds including alginic acid, a complex carbohydrate that bonds to micronutrients in the soil and makes them easier to be absorbed by the plant (It also serves as a food source for beneficial microbes in the soil); mannitol, a sugar alcohol that also bonds to micronutrients in the soil and makes them easier to be absorbed by the plant; and organic acids that feed beneficial microbes in the soil that deliver nutrients to plant roots.</p>	<p>Adverse growing conditions such as drought, flood, heat, disease, and insect pressure reduce the potential for improved crop yields.</p> <p>Multiple bioactive compounds found within ASA plays a role in helping plants tolerate these stress conditions including the production of proline, an amino acid that strengthens cell walls and regulates the amount of water within cells to keep cells hydrated and healthy during stressful situations; mannitol that also helps regulate the amount of water within cells to keep cells hydrated and healthy during stressful situations; key polysaccharides, complex carbohydrates that trigger antioxidant production within plants and protecting plants from damage caused by harmful molecules called free radicals; and betaines that help adjust the levels of water, salt, and other compounds within cells so that plants can better manage water, salinity, heat, and chill stresses.</p>	<p>Improving post-harvest quality and extending the shelf-life of highly perishable fruits and vegetables can help farmers access new markets as their produce will be able to better withstand shipments to faraway destinations.</p> <p>Multiple bioactive compounds found within ASA help plants improve post-harvest quality including key polysaccharides, complex carbohydrates that trigger antioxidant production within plants and protecting plants from pre- and post-harvest damage caused by free radicals; proline, an amino acid that strengthens cell walls within plants so that they don't break down as easily post-harvest; and oligosaccharides, complex carbohydrates that stimulate plant defense mechanisms so that plants can better fend off post-harvest losses from rot and decay caused by fungi or bacteria.</p>
<ul style="list-style-type: none"> <li>• Nitrogen (water soluble and insoluble)</li> <li>• Phosphoric acid</li> <li>• Potash</li> <li>• Calcium</li> <li>• Manganese</li> <li>• Beneficial organic compounds found in nutrient-rich seeds</li> </ul>	<ul style="list-style-type: none"> <li>• Drought Stress</li> <li>• Heat Stress</li> <li>• Chill Stress</li> <li>• Salinity Stress</li> </ul>	<ul style="list-style-type: none"> <li>• Improves post-harvest appearance</li> <li>• Improves firmness</li> <li>• Reduces decay and post-harvest losses</li> </ul>



## What is in ASA and how much do I use?

Derived from	Nutrient analysis	Applications
<ul style="list-style-type: none"> <li>• Fermented Glycine Max Seed Extract</li> <li>• Ascophyllum nodosum</li> <li>• Lacto Bacillus Casei</li> <li>• Molasses</li> <li>• Hydrated Sodium Calcium Aluminosilicate</li> <li>• Ceramic Powder</li> <li>• Sea Salt</li> <li>• Humic Acid</li> </ul>	<ul style="list-style-type: none"> <li>• Nitrogen (N) 2-3%</li> <li>• Phosphorus (P) 3-4%</li> <li>• Potassium (K) 2 -3%</li> <li>• Sulphur (S)</li> <li>• Calcium (Ca)</li> <li>• Iron (Fe)</li> <li>• Magnesium (Mg)</li> <li>• +24 other types, including essential trace minerals</li> <li>• Amino acids</li> <li>• Carbohydrates               <ul style="list-style-type: none"> <li>○ Alginic acid</li> <li>○ Mannitol</li> <li>○ Laminarin</li> <li>○ Other sugars</li> </ul> </li> <li>• +11 types of vitamins</li> </ul>	<p>The following application rates are approximate and may vary depending on climatic conditions, soil type and soil fertility. Soil and tissue testing should be used to help verify proper rates.</p> <p><b>Compost</b> Mix 10 lbs. per yd<sup>3</sup>; 6 kg/m<sup>3</sup></p> <p><b>Potting Soil</b> Mix 3 – 7 lbs. per cubic yard (1.3 – 3 kg/m<sup>3</sup> per 0.7 cubic meter) of potting soil depending on if composition includes nutrients in mix to be amended. House Plants, Flowers &amp; Landscape Mix 1/2 teaspoon per inch (2.5 g/2.5 cm) of pot diameter with potting soil before planting. Apply 1 teaspoon (5 g) every three months to the soil surface and water-in thereafter. For ornamentals and shrubs, apply 1/2 – 1 lb. (226 - 454 g) to the soil around each plant and lightly till or water/irrigate into soil.</p> <p><b>Turf and Lawn</b> Apply once a year in the spring and fall for optimal results. For new lawns, apply at 5 lbs./1,000 sq. ft (2.2 kg/93 m<sup>3</sup>) and till or water/irrigate into soil before planting seed or laying sod. For professional turfgrass, apply 2.5 lbs./1,000 sq. ft (1.1 kg/93 m<sup>3</sup>) twice per year in the early spring and fall which should be broadcast prior to a rain or watered-in. This rate can be split and applied up to 4 times per year.</p> <p><b>Vegetables &amp; Small Fruits</b> Use rates are generally 150 lbs./acre (68 kg/hectare) broadcast, 100 lbs./acre (45 kg/hectare) banded, or 50 lbs./acre (22 kg/hectare) for row application. 1/4 lbs. per 100 sq. ft (113 g/9 m<sup>3</sup>) or 1/2 lb. per 200 feet (226 g/61 m) of linear row in a 6" wide band, or less.</p>



		<p><b>Viticulture</b> For grapes in a small vineyard apply 1/2 - 1 lb. (226 - 454 g) to the soil around each plant and lightly till or water/irrigate into soil. For large vineyards rates are generally 150 lbs./acre (68 kg/hectare), 100 lbs./acre (45 kg/hectare) banded, and 50 lbs./acre (22 kg/hectare) for row application.</p> <p><b>Orchards</b> For small or home orchards apply annually to trees on ground surface under the drip line at the rate 1 – 5 lbs./tree (454 g – 2.2 kg/tree), depending on the tree size. Double the application for decline or blight-stricken trees. For commercial orchards rates are generally 150 lbs./acre (68 kg/hectare) broadcast, 100 lbs./acre (45 kg/hectare). Double the broadcast rate for new orchard plantings.</p> <p><b>Field Crops</b> Begin with a broadcast rate of 150 lbs./acre (68 kg/hectare), 100 lbs./acre (45 kg/hectare) banded, and 50 lbs./acre (22 kg/hectare) for row application. Use up to 300 lbs./ acre (136 kg/hectare) for high value crops. Follow this with annual maintenance rates of 150 lbs. per acre (68 kg/hectare) or may be adjusted up or down according to soil analysis.</p>
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