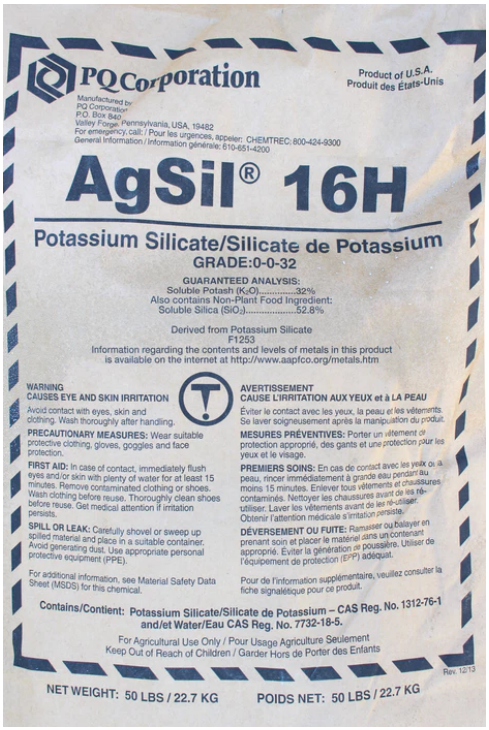
How to easily lower the costs of your Athena nutrient regime

You can make your Athena schedule much cheaper by replacing the pH up products with simple raw salts. Branded pH management and buffering products like Athena Balance and Athena Pro Balance are, at their core, just sources of potassium bases delivered in carbonate or silicate form. They are however, very over priced for what they are and can be a high percentage of the overall cost of running these nutrient regimes. By understanding their labels and safety data sheets, we can replicate these formulations with commodity salts, achieving equivalent nutritional and pH adjusting outcomes at a fraction of the cost.



AgSil 16H, a very common base used to prepare potassium silicate solutions.

Athena Pro Balance can be replaced with Potassium Carbonate

The powdered Pro Balance product is likely nothing more than high-purity potassium carbonate (K_2CO_3), usually 98.5–100%

pure. Chemically, K_2CO_3 contains ~68% K_2O-equivalent by weight, which is exactly what the Athena Pro Balance label reflects. This means you don't need to blend or dilute anything to make a replacement, simply sourcing food-grade or fertilizer-grade potassium carbonate is sufficient. You can dose it directly as you would the branded powder, bearing in mind it is strongly alkaline and should be added to water with care. Storage should be in sealed HDPE containers to avoid caking from atmospheric moisture.

Athena Blended Balance (liquid) can be replaced with an AgSil 16H solution

The liquid Balance label shows 2% K_2O. AgSil 16H, a common potassium silicate source, contains 32% K_2O and ~53% SiO_2. To reproduce the K_2O content of Athena Balance, you need to dilute AgSil at the correct ratio:

- Target is 2% K_2O.
- Required fraction = 2 / 32 = 0.0625.
- This means 6.25% (w/w) AgSil in water.

Translated to a practical recipe, this equals **236.6 g of AgSil 16H per US gallon of solution** (3.785 L), topped up with RO water (must be RO or distilled water). Dissolve the AgSil slowly with vigorous mixing, as potassium silicate is highly viscous and alkaline. The result is essentially identical in potassium concentration to the branded Balance, with the added benefit of supplying soluble silica (~1.55% Si in the solution).

Improving stability with KOH

One common issue with potassium silicate solutions is their tendency to polymerize or precipitate over time, especially at lower concentrations or in the presence of divalent cations. To mitigate this, adding a small amount of potassium hydroxide (KOH) helps maintain a strongly alkaline environment that discourages silica gelation. For the recipe above, **adding 1 g**

of KOH per gallon of solution is a simple way to improve stability during storage. This will not significantly change the K_2O content but will keep the solution more stable and easier to handle.

Cost Analysis

Beyond the chemistry, cost is the main driver for making these substitutions. Let's look at a ballpark comparison based on typical retail prices (USD, 2025):

Product	Retail Price	Equivalent Raw Material	Raw Material Price	Cost per Gallon of Finished Equivalent
Athena Pro Balance (powder)	~$7 per lb	Potassium carbonate	~$2 per lb	Replacement is more than 3x cheaper
Athena Balance (liquid)	~$20-40 per gallon	AgSil 16H + 1 g KOH	~$6.4 per lb AgSil, ~$5 per lb KOH (~3$ AgSil + 1c of KOH per gal)	Replacement costs is around 10x cheaper

For the Balance liquid in particular, the price difference is striking: the branded gallon runs around $20-40, while the equivalent solution made from AgSil 16H plus a pinch of KOH comes out to under $3 per gallon, even at retail chemical pricing. The Pro Balance substitution is less dramatic in absolute terms but still represents substantial savings over time.

Take-home message

Replacing Athena Pro Balance is as simple as sourcing potassium carbonate, while Athena Balance can be reliably reproduced with a potassium silicate solution prepared from AgSil 16H plus a small stabilizing addition of KOH. For growers comfortable working with raw salts, this substitution

strategy provides full control, predictable composition, and significant cost savings while providing a drop-in replacement for one of the most expensive parts of the Athena nutrient line.