

# Fertilizer

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**Hydrokirby Ammonium Nitrate** (NH<sub>4</sub>NO<sub>3</sub>), 34-0-0, pelletized, 50 lb bags, Item #14AN50, annually, from Griffin Greenhouse, 24 bags @33(in 2015)-36 (its increased \$3 over the past few years) plus \$30/delivery =822-894/year. Our blanket PO #R837750 was closed by Purchasing, so another could be reopened). They need a "firm order" to get in stock to resell, so make sure PO is submitted well in advance of desired delivery date, restricted to their regular routes: Conway every weds. Thornton every other Tuesday.

Specify Ship to Address #2:

c/o Rick Biche, 99 VFW St, Conway, NH 03818 (DO NOT USE WITHOUT CONFIRMING PERMISSION WITH THE BICHES!!!!)

Or set up a new address. (Do NOT use Ship to #1, it's the ESF Experiment Station on LaFayette Rd.)

Contact: Donny Cogswell [<mailto:dcogswell@griffinmail.com>], Tewksberry customer service phone 978-513-7038, fax 877-636-3623

**Remaining after 2015 season:** Jerome reported 2 bags at HB. When Adam moved to PVP, he discovered already there: One full bag, a bag 3/4 full, and a couple shopping bags with N weighed out.

**Monosodium Phosphate (MSP)**. biannually, from Univar, 24 x 50 lb bag @ \$2.80 / lb plus \$70 fuel surcharge = 3430 in 2015. Not sure how much more that would increase over the course of the grant, because it didn't increase much between the first order in 2011(\$1.35) and 2013 (1.41) but has about doubled. Should order for 2016, as there are only 8.5 50 lb-bags remaining.

We've been having shipped to BEF.

2015: switched to granular formulation, which is chemically identical, but easier to apply  
PC #683553 MSP Anhydrous granular, in 50 lb bags

Contact: Catherine A Sepe, Univar USA, Providence, RI 02905, 401- 784- 6625 (phone), 401-461- 1140 (fax), [catherine.sepe@univarusa.com](mailto:catherine.sepe@univarusa.com)

**Remaining after 2015 season:** 5 bags (powder), 9.5 bags (granular), which at current rate should be sufficient for 2016

**Wollastonite, as Vansil W-10**, from Vanderbilt Minerals, Gouvernor, NY. Scott Dole [<mailto:SDole@vanderbiltminerals.com>] First 5 tons for only shipping cost, used all at once (they don't recommend storing longer than 6 months). That same quantity in 2015 would be 5 tons@ \$180/ton (bagged; its less if you get bulk, but not a good option for us in terms of transport and temp storage). "Less than 15 ton truck load fee" of \$500.00=\$1400 plus freight charges (between \$900 and \$1100 last time, between the initial quote, and the billing fiasco that followed, so \$1500 seems a safe guess now). They were talking of significantly reducing fee, so double check. Special notes: It is made to order, so need significant lead time. For single bags they recommend their regional distributors: JNS Smithchem Paterson NJ (973) 278-9050 or... TMC Shrewsbury, Ma (508) 770-0076 (Also note, Ruth doesn't anticipate additional purchases, but you never know).

**Remaining after 2015 season:** 2 bags

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# Other Consumables

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**Shotgun Shells (for Foliar sampling).** We've been getting Winchester Shot 12 gauge shotgun shells, 3 inch, 1400 FPS Velocity (not important), 1 1/4 oz, 3 shot from Cabelas, until they started imposing terms on Purchase Orders that were not acceptable Purchasing. Purchasing suggested the vendor they work with for UPD's state contract ammo

Eagle Point Gun/T.J.Morris & Son,

1707 Third Street

Thorofare, New Jersey 08086

PH 856-848-6945

FX 856-384-2938

EM [majortjmorrisiii@comcast.net](mailto:majortjmorrisiii@comcast.net)

Tom Morris apparently sources from VisaOutdoor.com, who for some reason has been unwilling to provide him a quote, just that they were out of stock. If they ever do quote, Purchasing says ammo MUST come through central receiving (who can reship for us, if necessary) for campus 3-part verification. If Adam still works at Cobleskill, and he remains our marksman, it may be possible to ship to him there.

Requested quote again 12/8/15. Purchasing intercepted quote request with: [ORP is working to draft procedures for the purchase of ammunition. All ammunition orders will need ORP approval before being placed.](#)

In the meantime, Adam purchased both #2 and #4 at sporting goods stores on the way to NH, and was reimbursed. He reports: "For future reference, ... #4 ...shot size is too small and was not as effective at knocking down branches. It worked okay in younger stands where the trees were not as tall. The #2 worked fine but I think #3 is the best mix in shot size and quantity of bb (when the bb is larger there are less of them in a shell).

**Bags.** Central Restaurant Supply, 642 N Salina St, Syracuse, NY 13208, (315) 474-6848. We've been working with Tim. Lots of sizes of brown paper bags in addition to these:

Item#	Size	width x gusset x ht	Unit	purchased	For
HUF40005	5 lb	5 1/4" x 3 7/16" x 10 15/16"	BDL/500	10/2014	B-9 Marshall
HUF40013	12 lb	7 1/8" x 4 1/2" x 13 3/4"	BDL/500	6/2014	BEF
HUF40017	16 lb	7 3/4" x 4 13/16" x 16 -/-"	BDL/500	10/2013	BEF
HUF40021	20 lb	8 1/4" x 5 5/16" x 16 1/8"	BDL/500	10/2014	?
WEB25050	Zip bag quart	?	cs/500	5/2014	BEF
WEB25100	Zip bag, gallon	?	cs/250	5/2014	BEF

**Sharpies Coin Envelopes:** Proftech (online, direct bill)—each user needs credentials from Purchasing

125328 Sanford Sharpie® Permanent Markers, Fine Tip, Black Ink, 12/Pk

638561 Quality Park Gummed Kraft Coin & Small Parts Envelopes, Side Seam, #5 1/2, Light Brown, 5 1/2"W x 3 1/8"L, 500/Bx

638568 Quality Park Gummed Kraft Coin & Small Parts Envelopes, Side Seam, #3, Light Brown, 2 1/2"W x 4 1/4"L, 500/Bx

638571 Quality Park Gummed Kraft Coin & Small Parts Envelopes, Side Seam, #1, Light Brown, 2 1/4"W x 3 1/2"L, 500/Bx

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**Ink and Toner**, other office, should be ordered from Proftech or Guy Brown (also need credentials from Purchasing), whichever has the best price. Our printers include:

- Brother HL-5250DN, uses Brother TN 580 (high yield), or CT 580 or TN 550 (regular) and drum **DR520**
- HP Laserjet 4p
- HP Deskjet 890C (45, 23)
- SASStop: HP Laserjet 1018 (HP 12A)
- Ruth's office: HP Laserjet 5m, also uses HP 98A--one in Stock
- Ruth's house: HP Laserjet 1150 (24x)

**Sapflow Sensors:**

The original shipment of supplies from Michele Pruyn came with two big spools, one red (“heater”) wire, one red/blue combined (“thermocouple”). But Michele also mentioned they’d been experimenting with separate red and blue, and combining it themselves. So, we ordered separate as well—the little spools.

Crew couldn’t tell them apart because they were the same thing, just one from a new 100’ roll, and the remnants of a 500’ roll, but no one caught on that this was the case, until Michele spelled it out:

The thermocouple is the copper and constantin wires twisted together... they make a thermocouple because the logger measures how currents move through the wires differently to estimate temperature (electrically challenged person’s explanation)

One probe just has the thermocouple wire running through it... the other probe has the thermocouple wire, plus the copper wire wound around it so it will heat up...

We calculate sapflow by measuring the difference in temperature between the two probes.

Each heater sensors requires: Each 50 cm red wire (heater portion), 15 cm red wire, 15 cm blue wire, so we go through red a lot faster than blue—100’ rolls worked because some could stay here, some to NH. If all in one location, longer spools probably preferred. Shorter ones also available. Regardless of spool length, allow enough time for Purchase Orders!

Wire Description	Catalogue/Item#	Vendor
Constantan <b>Red</b> Thermocouple wire, 100’	TFCC-005-100	Omega (omega.com), <b>1-888-826-6342</b>
Copper <b>Blue</b> Thermocouple wire, 100’	TFCP-005-100	Omega (omega.com), <b>1-888-826-6342</b>
BELDEN 8723 060500 SHIELDED MULTIPAIR CABLE 2PR 500FT 300V CHROME “gray wire”	88K1501	Newark Element14, 7449 Morgan Rd, Liverpool, NY 13090:

**Batteries**, from Napa Auto Parts Redstone (Omni 3 MWV PO BOX 2235, N Conway, NH 03860) catalog #8240 deep cycle marine batteries (10”) plus deposit

**Heater board supplies** from Jameco Electronics, 1355 Shoreway Road, Belmont, CA 94002

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To build 6 *circuits* (Assuming you want one *circuit* per PCB. If you want 2-3 per PCB, then you would need 3 or 2 PCB's, respectively).

PERFORATED BARE PHENOLIC PROTOTYPE BOARDS, catalog #616690 [\[\\$36, \(6 each\)\]](#) [6 units]\*

Connector Terminal Block 2 Position..200" /5.08Mm Spacing Top Screw, catalog #2120567 [\[\\$10 \(0.5 each\)\]](#) [24 units]

220 $\mu$ F electrolytic capacitor [25V is enough] , catalog #158263 [\[\\$1 \(0.1 each\)\]](#) [6 units]

180 $\Omega$   $\pm$ 5% 0.5W catalog #661327 [\[\\$5 \(0.05 each\)\]](#) [100 units]

12 $\Omega$   $\pm$ 5% 0.5W catalog # 659833 [\[\\$5 \(0.05 each\)\]](#) [100 units]

47 $\Omega$   $\pm$ 5% 0.5W catalog # 661183 [\[\\$5 \(0.5 each\)\]](#) [100 units]

1000  $\Omega$  trimming potentiometer. Code 102, catalog # 1157149 [\[\\$18 \(2.89 each\)\]](#) [6 units]

250V 1A Fuse catalog # 103908 [\[\\$2 \(0.29 each\)\]](#) [6 units]

Fuse holder catalog # 1712608 [\[\\$6 \(1.0 each\)\]](#) [6 units]

Two 1N4001 diodes catalog # 35975 [\[\\$2 \(0.05 each\)\]](#) [20 units]

LM317 voltage/current regulator catalog # 898800 [\[\\$10 \(1.59 each\)\]](#) [6 units]

LM317 heat sink [TO-220] catalog # 158051 [\[\\$2 \(0.29 each\)\]](#) [6 units]

Lacquer for protection catalog # 2120559 [\[\\$17 x 1\]](#) [1 unit]