



## RESOURCE GUIDE

### HOW IT WORKS

ALPHA Radish<sup>®</sup> grows rapidly with an aggressive taproot that can reach down 6 ft. or more to bring up nutrients from deep in the soil, and creating channels that the roots of subsequent crops follow. This has been proven to increase corn rooting mass at lower depths in the soil, resulting in higher corn yields.

### PLANTING AND MANAGEMENT GUIDELINES

**Timing:** Plant 3-10 weeks before first freeze

**Seeding Depth:** 0.25 - 0.5"

Can be planted 1" in light soils if necessary to reach moisture. Comparable seed on drill chart is Alfalfa (reduce by 10%).

#### Seeding Rates

- **Drilling** (7.5" rows): 6 lbs/acre

- **Broadcast / Aerial:** 8-10 lbs/acre

- **Precision Planting:** (15" with 4" in-row spacing): 4 lbs/acre

*(Using Kinze Brush Meter with Backing Plate and other planters using Small Sugar Beet Plate set to 100K Pop)*

- **For Forage:** Increase drilling rate to 8-10 lbs/acre

#### Control

ALPHA Radish<sup>®</sup> winter kills when temperatures drop to the mid-teens (°F) for two or three consecutive nights. If planted very early as a cover crop, or in warm climates, flowering may begin, which indicates the work of the tuber in absorbing nutrients is complete. Anytime flowering occurs, ALPHA Radish<sup>®</sup> can be controlled with mowing, grazing or chemical burndown (spray application) using one quart of glyphosate along with one pint of 2,4-D or the equivalent.



### ALPHA RADISH<sup>®</sup> KEY BENEFITS

- Fast growing fall cover crop
- Great N scavenging
- Winter terminates in most areas
- Can suppress weeds
- Good wind erosion control
- Large biomass potential
- High sulfur uptake
- Deep and aggressive taproot
- Favorable C:N ratio for rapid breakdown and release of N
- Higher percentage of below-ground biomass than other cover crops

PRODUCED BY



**Sunn Global Biologics** LLC

*Helping Farmers Grow*

Mobile: 717-298-0856  
 Fax: 610-200-6406  
 Skype: ID: david.weaver74  
 Email: Info@SunnGlobal.com  
 Website: SunnGlobal.com  
 Mail: P.O. Box 74  
 Robesonia, PA, 19551 USA

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## KEY BENEFITS:

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ALPHA Radish® brand cover crop radish is one of the few products developed and commercialized specifically as a cover crop. Its performance during two decades of selection and screening show it to be a good choice for those with little or no experience in growing cover crops.

One key to its rapid growth is the strong taproot, which can reach down 6 ft. or more and bring up nutrients from deeper in the soil, creating root channels that roots of subsequent crops can follow. This has been proven to increase corn rooting mass at lower depths in the soil, resulting in higher corn yields.



Because of its rapid fall growth, ALPHA Radish® accumulates more biomass than any other species, taking up more nitrogen, potassium and sulfur than other cover crops grown in this time frame. The fleshy root, often called a "tuber" although not a technically

The taproot of the ALPHA Radish® shown on the left in a soil pit was found at a depth of 6.5 feet below the soil surface.

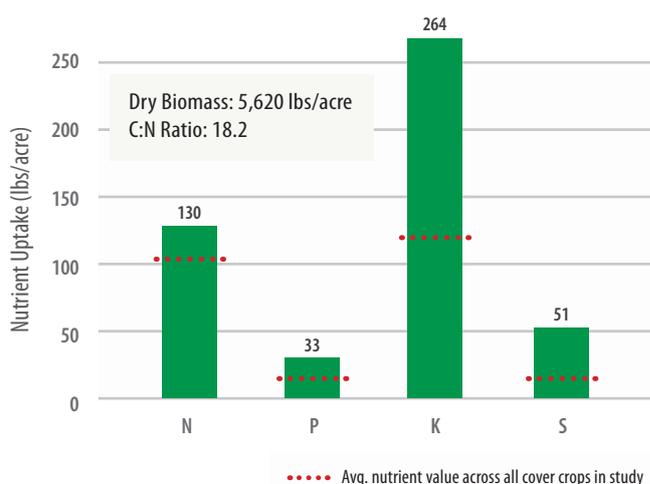


correct term, permits a major biomass source that can store larger amounts of nutrients.

It is normal for ALPHA Radish® to have a third or more of the tuber growing above the ground. This is not an indicator of compaction below or a lack of penetration into the soil. Much of the work that the radish does on opening up the soil is from the taproot, not the tuber. Few people are aware of how deep the taproot can penetrate because it is difficult to dig deep enough to follow it. (A backhoe is usually needed to follow a well-grown radish root.) The large tuber is an indicator of good growth, which can only occur if there is a good root structure below.

When seeded and established properly, the rapidly growing canopy can also out-compete most fall weeds, creating weed-suppressing benefits that can last into spring.

### ALPHA Radish® Fall Nutrient Uptake



Average values taken from replicated plot data in Holtwood, PA planted after wheat in 2014. Sampled 90 days after planting with 60 days growth prior to first frost.

Data from Trial 2014-1-35 at Holtwood, PA.



Produced by  
**Sunn Global Biologics** LLC  
Helping Farmers Grow

Phone: +1-717-298-0856  
Fax: +1-610-200-6406 E  
mail: Info@SunnGlobal.com

SunnGlobal.com  
PO Box 74  
Robesonia PA 19551 USA



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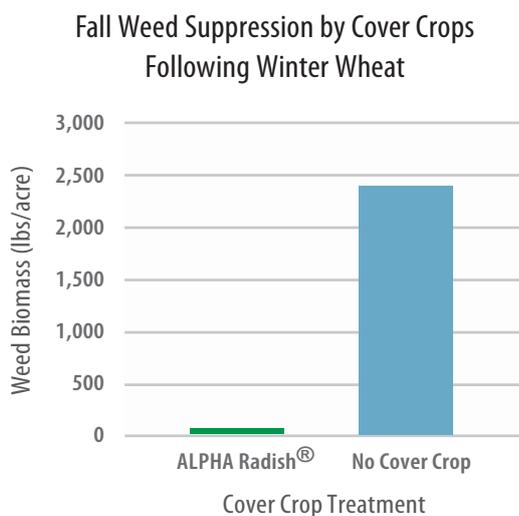
Several consecutive nights around in the mid-teens (°F) will terminate ALPHA Radish® brand cover crop radish. In most areas, decomposition will be delayed until warmer conditions occur in late winter/early spring. With sufficient growth, the leaf residue can deter fall and early spring weeds. In more temperate areas where ALPHA Radish® overwinters, it is easily terminated with herbicides. (See information on control.)

In areas where ALPHA Radish® is winter-terminated, herbicide burndown is not needed for the cover crop in the spring. Because it is winter terminated in most areas and has a low C:N ratio, its residue decomposes rapidly when soils warm in spring.

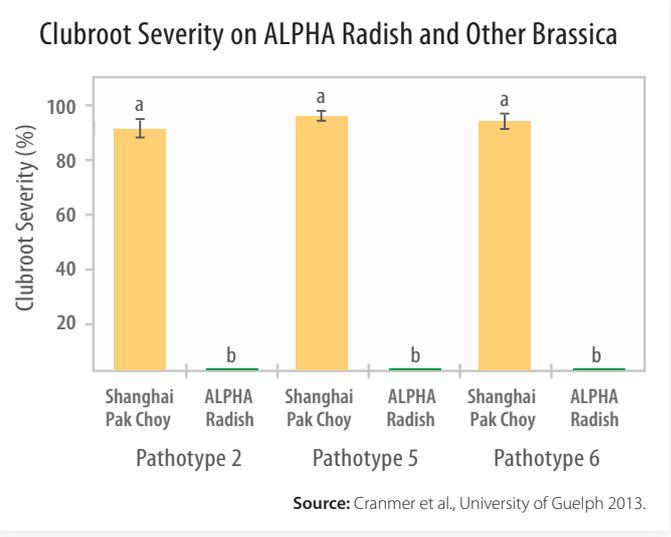
This rapid decomposition makes nutrients scavenged by ALPHA Radish® more available to the subsequent crop. It also aids in warming and drying soil for spring planting. The decayed residue leaves open voids in the soil surface and pores where the taproot penetrated compaction zones. This means greater air and water circulation in the soil, increased microbial activity, and much easier planting.

When used as part of a grazing mix with small grains or annual ryegrass, it can increase protein and mineral content, as well as boosting overall yield.

ALPHA Radish® has many properties that make it an excellent cover crop for use in a corn-soybean or small grain-canola rotation. There is concern that rotating canola with ALPHA Radish™ might lead to increased levels of Clubroot and other pathogens, since both are members of the Brassica family. However, preliminary data suggests ALPHA Radish™ is not likely to add to these problems. The graph below shows data from the University of Guelph confirming the lack of detection of the ALPHA Radish® as a host for Clubroot.



Source: Michigan State University, Extension Bulletin E2907.



These photos show ALPHA Radish® residue remaining in Central Iowa on March 17, 2014 (left) and April 21, 2014 (right). Note that leaves still covered the soil in mid-March, but were gone by planting time in April.

#### PLANTING TIPS & SEEDING RATES

**Planting:** 3-10 weeks prior to first freeze

**Seeding Depth:** 0.25 - 0.5"

Can be planted 1" in light soils if necessary to reach moisture. Comparable seed on drill chart is **Alfalfa** (reduce by 10%).

#### Seeding Rate:

- **Drilling (7.5" rows):** 6 lbs/acre

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*(Kinze Brush Meter with Backing Plate and other planters using Small Sugar Beet Plate set to 100K Pop)*

- **For Forage:** Increase drilling rate to 8-10 lbs/acre

**Control:** ALPHA Radish® winter kills with 3 nights in the mid-teens. If planted very early as a cover crop, flowering can develop before they're winter killed. This can be controlled with mowing, grazing or burndown using one quart of glyphosate along with one pint of 2,4-D equivalent at flowering.

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