In 2009, Renwood Farms introduced the RenPro family of soybean seed treatments. These seed treatments provide soybean seedlings with:

- Protection from fungal pathogens carried on the seed from last season
- Protection from soil fungal pathogens
- Protection from above and below ground insects
- Nutrients that regulate nitrogen uptake and utilization
- Biological microbes to stimulate plant growth and plant defense mechanisms (when ordered)
- Nematode protection (when ordered)

Fungal pathogens carried on the seed

There are fungal pathogens that are carried on seed at harvest then transmitted to the new crop if the seed is not scrubbed clean. The most common seed-borne diseases are pod and stem blight, purple stain and anthracnose. If not cleaned, this seed-borne damage is not noticed until late season or even at harvest. RenPro contains two seed cleaners.

Root fungal pathogens found in soils

The problem with fungal pathogens is that once a stand is established, growers think they are clear as far as fungal infections are concerned. But many fungal root infections don’t cause problems until roots start working hard at flowering and pod-fill. It’s hard to understand when the combine is running through the beans at harvest that lower-than-expected yield problems could have started at emergence.

There are three main root rot fungal pathogens that lower yields in soybean production: pythium, rhizoctonia and fusarium. The chart shown at upper right displays the impact of soil temperatures and soil moisture on the different fungi. Seed treatments that help in hot soils are critical for double-crop beans.

RenPro contains three fungicides to reduce problems in cool and damp soils, problems in warm and damp soils and problems in warm/ hot and dry soils, especially lighter, sandier soils and in double-cropped situations.

Above and below ground insects

Adding an seed insecticide helps fungicides do their job. A key to high yield soybean production is to avoid any insecticide application unless specific insect thresholds are reached. Early spraying means more spraying as beneficial insect populations are reduced.

RenPro Plus contains 1.6 ozs. /140,000 seed unit of Gaucho 600 combined with the RenPro seed treatment package. This is twice the insecticide that is available from most other seed treatment products. The goal is to keep the plant clean from insects until late season.
Soybeans treated with RenPro Plus demonstrate aggressive early growth to shade the ground which reduces weed competition and conserve soil moisture. Quicker shading means less weed spraying which lowers costs.

Nutrients that regulate nitrogen uptake and utilization

RenPro contains molybdenum (moly). Over 80% of soybean plant tissue samples taken in VA and NC had low or deficient moly levels. Moly is essential for nitrogen-producing bacteria nutrition and for plant nitrogen utilization. Plants with low moly levels have fewer pods and fewer three-bean pods. Please note: foliar moly is usually needed to supplement this seed treatment.

Biological microbes to stimulate and protect

rizNate® is an encapsulated seed inoculant providing nitrogen-fixing bacteria plus several other free-living microbes. There are four main components:

- Brady Rhizobia nitrogen-fixing bacteria that provides nitrogen to the plant during the season
- Azotobacter vinelandii (bacteria) that increases soil moly and iron availability to the plant
- Clostridium pasteurianum (bacteria) that provides early nitrogen to the plant
- Mycorrhizae (fungi) that increase nutrient availability, protect against diseases and provide a critical component to help fight nematodes

rizNate® can be added to all RenPro soybean seed treatments

Nematode protection

There are three ways to reduce nematode damage: genetic selection, seed treatments and biological microbes. Most varieties use the identical genetic material to give a variety “nematode resistance”. This limits options to rotate the genetic material. Growers still need to select a variety listed either as having resistance to “root-knot” or “soybean cyst” depending on the problem you are trying to address.

Note that root-knot nematode resistance and soybean cyst nematode resistance are NOT the same and varieties have to be selected for the specific nematode problem.

At Renwood Farms, we have discovered that rotating nematode seed treatments and adding rizNate® biological inoculant are key management strategies to reduce nematode populations that lower yields.

Renwood Farms offers three different nematode seed treatments so a grower can rotate treatments. Each treatment has a different mode of action. Selecting a nematode-resistant variety, rotating with a seed nematode treatment and adding rizNate® biological inoculant provides a sound strategy to remove nematodes as a limiting factor in your soybean production.

Seed nematicides can be added to all RenPro soybean seed treatments

<table>
<thead>
<tr>
<th>2013 Seed Treatment Plot: King William Co. VA</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Variety: USG 74D32R  Planted 07/03/13</td>
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</tr>
<tr>
<td>Seed Treatment</td>
<td>Bu. /A</td>
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<tr>
<td>RenPro Plus rizNate</td>
<td>51</td>
</tr>
<tr>
<td>Untreated</td>
<td>47</td>
</tr>
<tr>
<td>Apron/ Max</td>
<td>46</td>
</tr>
</tbody>
</table>

2015: RenPro Plus with rizNate®, same variety

2015: other seed treatment

4.0 bu. /acre higher yields