

Angus Sports Turf Root Developer

For Rapid Development and Lower Cost Maintenance of Seeded or Turfed Sports Surfaces

Angus Sports Turf Root Developer is a high quality inoculant containing a range of different species of beneficial Endo mycorrhizae and a range of beneficial bacteria species. Containing 50,000 propagules/g of mycorrhizae and 10^7 of bacteria (20 different species & strains) in an optimised ratio, Angus Sports Turf Root Developer provides an ideal solution for populating root zone soils and establishing biological activity.

Our product offers the following benefits:

- **Faster grow in and establishment of new greens and pitches**
- **Promotes establishment and longevity of fine grasses**
- **Stimulates and promotes root growth increasing root mass**
- **Enhances nutrient uptake**
- **Increases plant tolerance to drought and stress conditions**
- **Healthy grass is less susceptible to damage and recovers faster from disease**

Angus Sports Turf Root Developer

Application: 1-2kg/ha incorporated into the top 10mm of the root zone immediately before seeding or turfing.

For an existing sward, micro tine the turf and apply at 1kg/ha diluted in water and use low pressure application equipment. Water in immediately and again the following day in the absence of rain. Apply during the growing season only.

Grass grown in a biologically active root zone needs less fertiliser, especially lower phosphate values than usual. We recommend that available phosphate does not exceed 15ml/kg in the soil.

The soil in new sand-dominated sports pitches is almost sterile. **Angus Sports Turf Root Developer** contains live spores of beneficial mycorrhizal fungi, growth-promoting soil fungi and bacteria, carbon, and organic soil nutrients to kick-start the soil's natural food web. This is essential for rapid establishment of newly seeded or turfed areas and to improve grass root growth and stress recovery.

Mycorrhizae are essential for grass health, attaching to the roots, they can increase the surface area for nutrient and water uptake by over 300%.

Bent, fescue and rye grasses rely heavily on mycorrhizal and other soil fungi for survival in nature. In sports turf, levels of mycorrhizae are low or non-existent due to near sterile soils, compaction, chemical and high inorganic nutrient use. The result is a weakened sward, which suffers more from drought stress, nutrient leaching, and disease and is quickly dominated by *Poa annua*, a grass that relies less on mycorrhiza for its survival in sports turf environments and more on seed head production.

Precautions: Mycorrhizal fungi are susceptible to some systemic fungicides that may adversely affect activity. Mycorrhizal fungi are effective in the soil with a pH between 3.5 & 8.0. For best results use low salt fertilisers; e.g. **Angus Turf Rise Granular** or **Angus BioActive ProloNg™ mini** low salt fertilisers.

best quality, best service, best value



Angus Amino Acids

Balanced Range of Amino Acids in a Fully Soluble Powder Form

Until the 1990s, scientists thought plants could only absorb nitrogen in inorganic forms. It is now known that they can absorb organic nitrogen too and applying amino acids can markedly improve plant growth and health. However, not all amino acid products are created equal and some can actually harm your crop!

Angus Amino Acids

- Highly concentrated source; 64% amino acid
- Natural L-isomers only; plants can use these directly in the production of proteins
- High quality blending of amino acids; this is essential to prevent toxic 'feedback inhibition' which occurs when applying single compound treatments. Angus Amino Acids are particularly high in glutamine; known to be essential for optimizing the partitioning of nitrogen to maximize yields.
- Low salt formulation
- Contain useful levels of N, P & K (N 10% : P₂O₅ 3.6% : K₂O 8%)

Solutions of Angus Amino Acids provide a bioavailable nutrient source for a wide variety of crops. Regular foliar application provides:

- **Strong and sustainable vegetative growth**
- Increased crop yield and quality
- **Improved resistance to environmental stresses**
- **Enhanced disease resistance**
- Increased Brix levels in fruit crops

Angus Amino acids content % dry weight

Alanine	4.88	Lysine	6.19
Arginine	6.48	Methionine	1.11
Aspartic Acid	5.80	Phenylalanine	2.51
Glutamine	9.00	Proline	2.57
Glycine	2.82	Serine	2.82
Histidine	1.23	Threonine	2.88
Isoleucine	2.90	Tyrosine	1.60
Leucine	4.30	Valine	6.23

Angus Amino Acids balanced range of amino acids in a fully soluble powder form

Application rate: 150g/ha every 10-14 days during growing season
Dissolve in sufficient water to get good leaf coverage and spray to run-off

Available in 250g & 1kg packs

Angus Amino Acids can be used in combination with other foliar applied products. No known incompatibilities exist but Angus Horticulture Ltd cannot predict or guarantee mix success for any product. Always conduct a bucket test to conform compatibility. Do not store dilute solutions for more than three days and clean out spray equipment with fresh water after use. Follow handling, storage and transportation procedures as outlined in MSDS.

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Angus Seaweed Meal

Angus Seaweed Meal is 100% *Ascophyllum nodosum* harvested from the Atlantic Ocean.

Our product offers the following benefits:

- Promotes stress resistant healthy sward
- Increases soil fertility
- Reduces requirements for chemical fertiliser
- Useful source of organic carbon
- Contains carbohydrates, amino acids, protein and vitamins all essential for healthy soils
- Ideal content of N & K and lower in P than many of the typical NPK ratios in chemical fertilisers
- Carbohydrates in *Ascophyllum nodosum* improves aeration & soil structure, especially in clay soils.
- Excellent moisture retention properties

Angus Seaweed Meal

1 - 2 mm; also available as 0.2 - 1 mm & 2 - 6 mm

Typical analysis:

N 0.6-2%, P 0.1-0.3%, K 2-3%, Ca 1-3%, Mg 0.5-1% + Trace Elements including: Zn 10-100ppm, Mn 2-10ppm, Cu 1-10ppm, Se 0.1-0.5ppm

Containing:

Alginic Acid 15-26%, Proteins 5-10%, Amino Acids

Rates of Application:

35-70 g/m² applied to the root zone in spring & autumn 20kg bag treats 286-571m²

We recommend that this product is used in the root zone before seeding or turfing or with a top dressing into hollow cores after aeration

Angus Seaweed Meal: top dress, turf feed & soil conditioner

Alginates, present in seaweed meal at levels of between 15% & 26% which increases microbial populations. It is well documented that the soil health and associated plant growth is directly proportional to the presence or absence of soil microbes. Alginates also absorb large volumes of water thus increasing the moisture in the soil.

Plant Hormones: Amino acids are a major constituent of **Angus Seaweed Meal** and are the essential, basic components of proteins. A range of plant hormones including cytokinins and biochemical compounds are also abundant in **Angus Seaweed Meal**. These substances significantly increase the protein content in grass and stabilise leaf proteins. Cytokinins are involved in many plant processes, including cell division and shoot and root morphogenesis. They are known to regulate axillary bud growth and apical dominance. The "direct inhibition hypothesis" posits that these effects result from the cytokinin to auxin ratio. This theory states that auxin from apical buds travels down shoots to inhibit axillary bud growth. This promotes shoot growth, and restricts lateral branching. Cytokinin moves from the roots into the shoots, eventually signaling lateral bud growth. Simple experiments support this theory. When the apical bud is removed, the axillary buds are uninhibited, lateral growth increases, and plants become bushier. Applying auxin to the cut stem again inhibits lateral dominance.

Angus Seaweed Meal is used to **condition soils**; as it breaks down it gently releases nutrients. Alginates, which are unique to seaweeds act to improve the structure of clay soils whilst increasing the water holding capacity of sandy soils. Seaweed is rich in trace elements essential to plants. **Angus Seaweed Meal** feeds lightly and will not produce excessive growth.

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Angus Zeolite

Angus Zeolite is a natural soil conditioner and remineraliser containing a useful source of slow release plant nutrients. This basaltic volcanic ash has a high cation exchange capacity [CEC] and contains a range of major and micro elements. Clinoptilolite can capture the substance of solid, liquid and gas phase in its large internal adsorption surface. The dimensions of the channels are large enough to enable molecule as big as few tenth of a nanometer to penetrate, while small enough not to capture large complex molecules such as amino acids, vitamins and other biological macromolecules. The Grid of clinoptilolite acts as a selective adsorption sieve that some molecules escape and others will not.

Angus Zeolite offers the following benefits:

- **Improves Cation Exchange Capacity [CEC] in root zone**
- **Prevents leaching of nutrients, holding on to nutrients that plants can access**
- **Water retentive, holding on to water and releasing water to plants at times of greatest need**
- **Introduces and contains beneficial oxygen to the root zone**
- **Improves drainage and permeability in the root zone**
- **Encourages vigorous rooting**
- **Easy application of 0.5 – 1mm, 1-2.5mm or 2-4mm particles**
- **Contains Potassium, Calcium & Magnesium**
- **Neutral pH +/-7**
- **Available in bulk bags or 20kg bags**
- **Easily incorporated into mini granular fertilisers on request**

Angus Zeolite

0.5 – 1mm or 1 - 2.5mm particles

Contains:	Potassium (K), Calcium (Ca) and Magnesium (Mg) in slow release form
Application:	Apply at any time of year
Apply to root zone before seeding or turfing	1 – 4 tonnes / hectare
Apply by itself or mixed with top dressing after aeration and brush into root zone	0.5 – 1 tonne / hectare

Angus Zeolite: naturally occurring hydrated alumino-silicate of alkaline metals and alkaline earth metals of volcanic origin. The structure of clinoptilolite consists of three-dimensional grid which consists of Silicate tetrahedrite (SiO_4)⁴⁻ each interconnected via oxygen atoms; the atoms of silicon is replaced by aluminum (AlO_4)⁵⁻ way, creating a characteristic spatial structure with a significant incidence of cavities, interconnected by channels, in which metal cations, or water molecules are stored. Experiments show that by adding 15% Angus Zeolite to sand the water holding capacity increases by 45-50%.

Available in 20kg bags or bulk bags



Angus HumiGranule™

Our **HumiGranule™** is granulated using naturally occurring material that is extremely rich in humic substances. It contains both Humic and Fulvic acids.

- **Improves soil structure**
- **Increases nutrient exchange and retention, CEC within root zones**
- **Stimulates microbial growth**
- **Improves nutrient absorption & increases nutrient uptake, especially micro nutrients**
- **Stabilizes pH**
- **Increases stress tolerance within the plant**
- **Increases root development**
- **Improves seed germination**
- **Easily applied through fertilizer spinners or top dressing equipment**
- **A source of energy for soil microbes present in the root zone**
- **A source of organic carbon necessary for healthy root zones**
- **Enhances shoot and root growth in turf**
- **Greater chlorophyll content**

Angus HumiGranule™

Total Humus content:	80% minimum		
Cation Exchange Capacity (CEC):	600 meq	Granule size:	0.4 – 1mm or 1 - 3mm
Rates of Application to be applied in 4-6 equal monthly applications:			
	Greens		750kg – 1000kg/ha annually
	Tees, fairways and sports pitches		500kg – 1000kg/ha annually

Angus HumiGranule™ is a soil amendment and not a fertiliser. As such it should always be used as part of a standard fertility program. Always read and follow label instructions.

Available in 20kg bags



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