

## Slow Release Fertilizers

<b>Characteristics</b>	<ul style="list-style-type: none"> <li>• Water insoluble</li> <li>• Low salt</li> <li>• Not susceptible to environmental loss</li> <li>• Lasts several weeks to several months</li> <li>• Nitrogen is released over long periods</li> <li>• Formulation allows fertilizer to slowly dissolve or release into the soil solution surrounding roots</li> <li>• Nitrogen release is dependent on microbial decomposition or physical and/or chemical processes in combination with microbial activity (microbial activity is dependent on soil moisture, pH, and temperature conditions)</li> </ul>
<b>Turf Response</b>	<ul style="list-style-type: none"> <li>• Provide low, uniform supply of nitrogen throughout the growing season</li> <li>• Initial turf response is slow, but the consistent release allows the fertilizer to last up to several months</li> </ul>
<b>Sources</b>	<p>Slowly Available Water Soluble Sources</p> <ul style="list-style-type: none"> <li>• Fertilizer granules can be coated in semi or impermeable membranes which regulate nutrient release. These products include: polymer coated urea, sulfur coated urea, and methylene urea.</li> <li>• Release occurs between 5-11 weeks.</li> <li>• Release is determined by temperature, moisture and/or the thickness of the coating.</li> </ul> <p>Water Insoluble Sources</p> <ul style="list-style-type: none"> <li>• These products include: urea formaldehyde, IBDU, and organic sources.</li> <li>• Release starts at 12 weeks and can last more than 32 weeks.</li> <li>• Release is dependent on microbes. Microbes are influenced by soil moisture, pH and temperatures.</li> <li>• Slow release organic sources require some combination of dissolution, hydrolysis, or microbial decomposition to release plant available nitrogen.</li> </ul>
<b>Most efficient use</b>	Apply at higher rates less frequently
<b>Advantages</b>	<ul style="list-style-type: none"> <li>• Release nutrients at more gradual rates which permit maximum uptake and utilization of the nutrient in the plant</li> <li>• Reduced losses due to leaching or volatilization</li> <li>• Cuts back on excessive turf growth</li> <li>• Longer turf response</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>• More expensive than quick release products</li> <li>• Some slow release sources are temperature dependent, which can be problematic in cooler regions</li> </ul>