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Germination of *Rudbeckia fulgida* var. *sullivantii* 'Goldsturm'©

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INTRODUCTION

Rudbeckia fulgida var. *sullivantii* 'Goldsturm' is a popular, award-winning perennial. It has consistently remained a top-three-selling perennial at Raker over the last 10 years. Raker annually produces in excess of 2 million 'Goldsturm' plugs from seed.

Like many perennials, consistent success with germinating *Rudbeckia* 'Goldsturm' is challenging, as germination and seed vigor can vary significantly from seed lot to seed lot, regardless of supplier. In our experience, 'Goldsturm' germination typically ranges from 20%–80% for standard lots.

ENHANCED SEED

There are now multiple suppliers offering enhanced 'Goldsturm' seed, including Benary (ApeX), Jelitto (Gold Nugget®), and Kieft (TunedSeed®). Our trial results with each product have unfortunately been inconsistent from seed lot to seed lot.

Germination of enhanced seed, regardless of supplier, generally ranges from 60%–90% in our experience. At least some of the inconsistent performance may be due to shelf-life issues with the enhanced products.

Methods for enhancing 'Goldsturm' seed are secret and proprietary. The treatments may include priming, hormone treatment (gibberellic acid), or multi-step processes. Raker uses our own proprietary seed treatment when enhanced 'Goldsturm' seed is not available from suppliers.

GERMINATION ENVIRONMENT

Temperature is a critical factor in germination of 'Goldsturm'. Traditional germination techniques usually involve cold stratification (40–50 °F, 4–10 °C) for several weeks before moving trays to a warm (70–75 °F, 21–24 °C) environment.

Raker uses a warm (85 °F, 30 °C), lit germination chamber for germinating 'Goldsturm'. Trays remain in the warm chamber for 4 days after sowing and are then moved into a greenhouse at 72–75 °F (22–24 °C).

Trays in the germination chamber are wrapped individually in clear plastic to ensure high humidity and proper moisture levels. Light enhances germination in 'Goldsturm', so seed is not covered.

SOWING

To help ensure good plant stands and meet our guaranteed tray counts, we sow multiple 'Goldsturm' seeds per cell in trays. For 288 trays, we sow two seeds per cell; for 128s, three seeds per cell. We also sow extra trays to use in the patching process ("overstart"), to help ensure can-ship full-plug trays. Overstart for 'Goldsturm' is 40% extra trays, regardless of tray size.

Ensuring good sowing accuracy, with seeds placed directly in the centers of cells, is important in producing high quality seedlings. Seeder operators should be trained well enough to understand their equipment and how to get the best efficiency and accuracy from it.

CROP TIMING

Crop timing for plug production is generally 6–7 weeks to finish a 288-cell plug and 8–9 weeks to finish a 128-cell plug.

Propagation of *Sarracenia* Species©

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INTRODUCTION

The notion that the Sarraceniaceae family of carnivorous plants evolved recently in geological time can be attributed to a complete lack of any fossil records (D'Amato, 1998). Most carnivorous plants evolved modified leaves as a survival mechanism to supplement low mineral and nutrient levels. Low nutrient availability within the root zone is due to the inherent wet, mineral deficient, acidic, peaty soils of the habitats in which they are found. North America has probably the widest range of carnivorous plants in the world — most *Sarracenia* species are found in the southeast United States of America (Schnell, 2002). Charles Darwin, among others, studied carnivores and published *Insectivorous Plants* in the 1875.

Carnivorous plants have developed various methods to capture animals; primarily these techniques of capture can be divided into "passive" and "active" methods. All Sarracenias use the passive method of "pitfall." In order to be considered a "carnivorous plant," a plant must lure, catch, kill, and digest its prey (D'Amato, 1998). Glands in the modified leaf shoots of many carnivorous families often produce digestive enzymes. The Victorian botanist, Sir Joseph D. Hooker (1859), was the first