ROLES OF NUTRIENTS IN POTATOES

Nutritional Product	Overview	Window 1: Pre-Plant or at Planting	Window 2: Hilling and Tuber Initiation	Window 3: Tuber Bulking
SERPENTINE NITROGEN STABILIZER CROP·POP LIQUID POP-UP FERTILIZER N AMINO·POP 13-0-0	Nitrogen (N) is important in fuelling growth and providing high yields. It is largely needed during leaf and vine formation and later for tuber growth and yield when it ensures optimal carbohydrate and starch production. Optimum total N rates vary with soil type and previous cropping history. About 50% of total N is taken up before tuber initiation. Therefore, where there are apparent yield responses to higher nitrogen rates, split applications should be made to help prevent losses.	Potatoes are very responsive to nitrogen at planting. Nitrogen helps build the overall size of the canopy. However, over-use of early N can lead to excessive vegetative growth at the expense of tuber formation. Balance correct nitrogen levels with phosphorus, potassium, magnesium, and sulfur - ensures a good start for the potato crop. Side-dress or Top Dress with **SERPENTINE®.**	Nitrogen at this stage helps maintain the greenness of the canopy and maximize yield. Apply **Crop Pop™** to enhance Tuber number and retention.	Nitrogen at this stage helps maintain tuber growth. Apply **N Amino Pop™** if additional Nitrogen is needed.
CROP·POP LIQUID POP-UP FERTILIZER RAPIDS UNDERTOW 0-0-3 FIELD READY STRESS MASTER POTASSIUM PHOSPHITE FERTILIZER 5-0-5	Phosphorus (P): Under situations of high phosphorus tie-up (e.g., extremely high or low pH soils, low organic matter, low P, sandy soils), fertilizer-P must be placed close to the seed piece. Because phosphorus is relatively immobile in the soil, banding the fertilizer usually works better than broadcasting.	Early phosphorus is important for establishing good root and shoot development in potatoes. At Planting treat with **CROP POP™ 9-24-4** starter fertilizer, **RAPIDS® Biological Food Source**, and **UNDERTOW® 0-0-3.**	Mid-season phosphorus, applied from hilling to tuber initiation, has been shown to increase tuber size and yields. However, foliar phosphorus is not a substitute for soil-applied phosphate. Without adequate soil phosphate early to mid-season growth is sub-optimal. At later stages, foliar-apply **Crop-Pop™**, and **STRESS MASTER™** (Potassium Phosphite) if more phosphorus is needed.	Following tuber initiation, having available phosphorus is essential for starch synthesis, transport, and storage in the tubers. At later stages, foliar-apply **STRESS MASTER™** (Potassium Phosphite) if more phosphorus is needed.
UNDERTOW 0-0-3 FIELD READY RAPIDS STRESS MASTER 5-0-5 FOLI·POP K CELP 4-0-9	Potassium (K) plays a key role in water use efficiency and good overall plant health in potatoes, which require large quantities throughout the growing season.	Potatoes are very responsive to potassium at planting. Potassium at this stage helps the growing plants maintain plant health and guards against water stress. At Planting: Treat starter fertilizer with **UNDERTOW®** and **RAPIDS® Biological Food Source.**	Potassium influences the transport of nutrients and the movement of carbohydrates from the leaf to the tuber. Therefore, mid- to late-season potassium in potatoes is critical for both high yields and good quality. At later stages, foliar-apply **STRESS MASTER™** (Potassium Phosphite), **FOLI-POP K™**, and/or **CELP™ 4-0-9** if more potassium is needed	
CALCIUM X-TREME 15-0-0	Calcium (Ca) is a key component of cell walls, helping build a strong structure and ensuring cell stability throughout the plant, especially in the tuber.	During this stage, calcium is a key component of cell walls, helping to build a strong structure and ensuring cell stability.	High calcium improves potato skin finish, boosts disease tolerance and minimizes internal disorders. Internal disorders such as IRS (internal rust spot or IBS (Internal brown spot) are all related to poor calcium content. Therefore, these conditions can be reduced by ensuring the crop has a good calcium supply, especially from hilling through tuber initiation and bulking. At later stages, foliar-apply **Calcium X-TREME®** to maintain high calcium levels.	
BORON X-TREME 7.5% MICROMAX TENTACLE FOLIAR NUTRITION ZINC X-TREME	Micronutrients like zinc, iron, manganese, copper, boron, and molybdenum are crucial for plant health, but their availability decreases as soil pH increases. High-pH soils are particularly prone to micronutrient deficiencies.	At Planting: Treat starter fertilizer with **MICROMAX™ and ZINC X-TREME®**	Elements like magnesium, manganese, boron, and zinc play vital roles in preventing disorders such as interveinal chlorosis, fruit defects, and overall plant health. Regular soil testing, tissue/sap testing, and targeted foliar applications can address deficiencies. At later stages, foliar-apply **Boron X-TREME®**, and **TENTACLE®** if additional micronutrients are needed.	

POTATO DEVELOPMENT GROWTH CHART