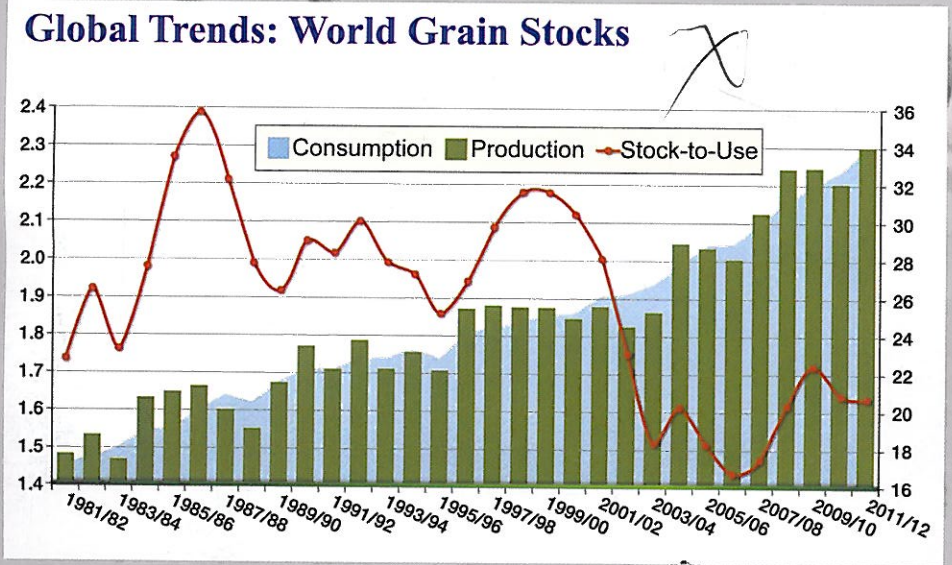
Food Security

Delivering on various agricultural initiatives is challenged by the increasing cost of inputs. In crop production the cost of fertilizers is a very significant portion of the operating cost. The cost of these key inputs inhibits project expansion and hence the realization of the various intended initiatives.

"Greater food availability in the low-income, food-deficit nations cannot be achieved with one silver bullet. No doubt, greater availability of fertilizer is critical to any solution." Norman Borlaug (Nobel Peace Prize)

Namibian and global agriculture and food production in general depends on the different kinds of fertilizer. In many African countries these fertilizers are imported and hence can be quite expensive. Most African countries have a negligent budget for fertilizer subsidy. Given the population growth on the continent, this will result in astronomical food prices and Namibia is no exception. However, with the discovery of phosphate sand on the seafloor of Namibia, there is an opportunity to develop a fertilizer manufacturing industry locally. The development of this industry will bring about reduced cost of fertilizers and hence reduced operating costs for agriculture.

Global Trends: World Grain Stocks



Facts about Phosphates

What are Phosphates?

Phosphate occurs as rock or sand, mined from the earth or sea floor and it is processed by mechanical washing, to produce a phosphate concentrate. The phosphate concentrate is an input in the production of phosphate-based fertilizers and has various other applications.

Why are phosphates in fertilizer?

Phosphates are natural nutrients necessary for plant growth and health, and are the most stable compounds to deliver phosphorus to plant roots. When choosing the right fertilizer, the phosphorus content is one of the key properties to consider, along with levels of nitrogen (for growth and greening) and potassium (for drought and disease resistance). Highly soluble ammonium phosphate and potassium phosphate salts can be blended with other sources of nitrogen and potassium to develop a variety of products to meet specific fertilizer needs.

Important Uses of Phosphates

Finished Product	Ingredient/Product	Phosphate Function
Fertilizers	Monoammonium Phosphate; Diammonium Phosphate; Dipotassium Phosphate	Nutrients for plant growth
Food & Beverages		
Baking Powder Self-rising Flour	Sodium Acid Pyrophosphate, Monocalcium Phosphate	Acid-Base reaction with sodium bicarbonate to produce carbon dioxide (CO2)
Cakes Baking Mixes (Waffles, Pancake, Muffin)	Sodium Acid Pyrophosphate, Monocalcium Phosphate, Sodium Aluminum Phosphate (Acidic)	Moderate action leavening; double action leavening
Colas	Phosphoric Acid	Acidulant
Pharmaceuticals & Personal Care Products		
Vitamins and Mineral supplements	Tricalcium Phosphate, Dimagnesium Phosphate	Provide Calcium, Magnesium and Phosphorus
Toothpaste	Dicalcium Phosphate Dihydrate, Dicalcium Phosphate Anhydrous	Polishing agent
Skin Care Cosmetics	Mono- and Di- sodium phosphates, Mono and Di-potassium phosphates	Buffers to maintain a given pH
Intravenous Fluids	Monopotassium Phosphate	Potassium replacing electrolyte
Antifreeze	Dipotassium Phosphate	Resistant to temperature extremes and buffer to maintain alkaline pH
Fire Extinguishers	Mono- and Di- ammonium Phosphates	Fire retardant