



Integrated Crop Management Demystified



In recent decades the focus on crop production has moved from yields to quality and safety, then more recently to sustainability. Right now the market is rewarding products that are grown to particular standards, thus the optimized crop production and specifically precision nutrition which is part of Integrated Crop Management.

People use the word Integrated Crop Management without knowing what it constitutes. ICM is a system of crop production which conserves and enhances environment while producing food on an economically viable and sustainable foundation. It is based on a good understanding of the interactions between biology, environment and land management systems.

Modern farming techniques is an important component of ICM as it reflects a key point of difference in comparison to organic farming which can be thought of, as rejecting modern techniques such as artificial inputs. Although the concept of whole farm approach is fairly prominent, it is considered that it is possible to have an ICM approach within a single crop, although other consider it as multiple crops that are often grown together in an integrated manner.

ICM can be said to be a pragmatic approach to production of crops comprising of components such as IPM, nutrition management, water management, soil management, environmental management and social management. One which is commonly adopted in Kenya is Integrated Pest Management -IPM. Growers have concentrated in IPM thinking they will get the overall benefits of ICM which is not the case.

Nutrition management is one of the crucial components of ICM. Costs of fertilizers are going up yet nutrition is inevitable in all kinds of agricultural productions thus drastic changes are required.

What should one observe in order to say that they are on nutrition management?

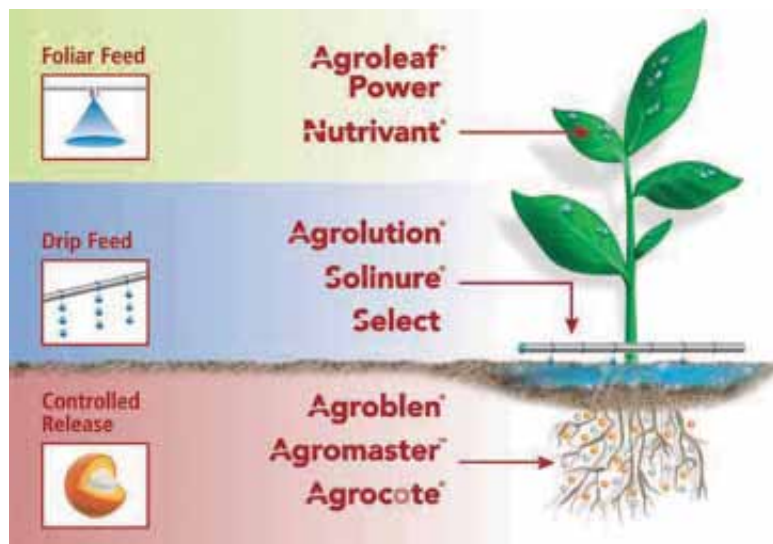
Precision nutrition boils down to four aspects: right fertilizer, right rate, right time and right place. To optimize fertilizer application, soil analysis should be performed. It can cut the cost on fertilizer by up to 50% since a farmer get to know what exactly the soil is rich in or is lacking.

As a farmer you first identify what your crops need ; may be phosphorous thus you identify which fertilizer you need, the components of the fertilizer i.e the nutrients analysis e.g. 20;20;20 (NPK) , the type eg foliar or base fertilizer and the quality of fertilizer raw materials i.e. no presence of heavy metals, form basis of the right fertilizer. Right timing; you find farmers complaining about their crops e.g potatoes growers experiencing crops with heavy foliage but poor tuber formation

and low tuber numbers due to over application of nitrogenous fertilizers during the wrong crop physiological stages, this constitutes wrong timing in fertilizer application . Right rate is also a big issue. If you go to hospital you are given an exact prescription e.g. 2 tablets per day and not 2 to 4 tablets per day; even in fertilizer application, it should be specific amount.

Suppliers of fertilizers are running to Africa since this is where farmers are not keen on precision. For example there are regions in Kenya which have been scientifically proven to have high phosphorous and potassium amounts in the soil, but due to lack of prior soil analysis, the growers keep adding fertilizers at uninformed rates resulting in excesses. Adequate balance in the supply of nutrients is necessary to avoid a phenomenon known as nutrient antagonism, whereby the excesses of one element may result in poor uptake of another. .

Poor fertilizer placement is also a contributing factor to waste of fertilizer. Elements like Phosphorous are immobile in the soil and as such should be placed close to



the roots canopy for optimal uptake. Deep placement may make the nutrient unavailable to the crop. Another example is the use of base fertilizers as foliar fertilizers, these are not engineered for this kind of uptake and as such wastage is high .

Optimizing and modifying the nutritional status of plants requires the correct products. Everris Ltd has developed specialized fertilizer products that match every application technique: foliar, drip or soil-applied. From

exclusive controlled release technology to high-quality drip feeding and fast and effective foliar feeding, they have a nutritional solution that is a three tire application system.

- Foliar fertilizers- this is a drift from usual fertilizers whereby the loss is at minimal due to addition of a unique sticking and spreading adjuvant known as fertivant and double impact due to the presence of biostimulants thus immediate results are exhibited.





- Water Soluble fertilizers- due to water constraints and precision needs in modern agriculture, fertigation i.e. fertilizer application through the irrigation lines has been widely adopted in Kenya. ICL the mother company of Everris is a pioneer in this particular

line of unique fertilizers. Quality and innovation being the cornerstone of their business, Everris has increased its product portfolio with a unique fertilizer line known as Novacid* this is a unique acidifying premixed fertilizer, a complete drift from the current practice

of mixing numerous commodity fertilizers in order to make a feeding regime. This is a unique fertilizer that contains all your nutritional needs in one bag. The technology has been borrowed from the liquid fertilizer technology that is currently being adopted in Israel. Unlike in the liquid fertilizer, you are only supplied with a concentrate and with expertise support you develop a regime that supplies the crop with adequate nutrients and lowers the pH of the water to guarantee maximum uptake of the elements and unblock the drippers while at it. This fertilizer is customized to fit the uniqueness of every media and individual crop needs not a blanket approach to nutrition.

- Control release fertilizers: -due to high susceptibility of the various elements e.g. Nitrogen to loss through leaching, runoff and volatilization into the air this unique coating technology has been developed, the elements are coated with different coats i.e. resin based coat or a Sulphur polymer. These protect the elements from the mentioned losses. The thickness of the coats dictates the longevity of the fertilizer in the media. Contrary to conventional fertilizers where elements are released once, in CRF they are released gradually. Controlled release technology synchronizes nutrient supply with plant demand. A young plant can only tolerate a low level of nutrients, but a fruiting plant demands a high level of nutrients.

With nutrition management nutrient application is matched to crop demand thus crop produced through ICM techniques is of high quality. ICM systems generally reduce the risk of excessive nutrients in the soil through lower or more rational fertilizer application strategies.



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