BE ON THE LOOKOUT FOR PSEUDO-SCIENCE PRODUCTS

Introduction

Pseudo-science also called false, fake or anti science includes beliefs, theories, or practices that have been or are considered scientific, but have no basis in scientific fact. The ever increasing prices of agricultural inputs alongside grower need to drive-up productivity (tons sucrose per ha, TSH) in a sustainable manner provide an opportunity for transitory businesses to prey on unsuspecting growers with pseudo-science products. SASRI Senior Soil Scientists, Drs Neil Miles and Rian van Antwerpen, christen them "*miracle* plant growth products". The products range from anything like so-called organic fertilizers, soil enrichers, crop boasters and pesticides. Literature indicates that the trade in counterfeit agricultural chemicals is a growing concern worldwide, driven by rising input costs and facilitated by experienced organised criminals.

Scientific statements

Firstly, these products are often adorned with scientific statements that are 'too good to be true' yet lacking scientific evidence. Such statements include - "*doubles yields at half the cost*", "*more environmentally friendly than conventional products*", "*confers pest and disease resistance*", "*enhances plants' water and nutrient use efficiency*" – just to mention a few. The underlying factor is the absence of scientific proof to support such claims.

Secondly, pseudo-science products are promoted as superior and/or best-fit alternatives for conventional products with known performance records. While superior and alternative products are genuinely required, their use should be sustainable and supported by scientific proof. A measure of a desirable agricultural product, in sugarcane production, is its ability to enhance biomass and sucrose yield in a persistent, consistent and economic manner without compromising future yields.

Review

New Zealand Soil Scientist, Dr Doug Edmeades in his paper "Pseudo-science: a threat to agriculture" argues that Pseudo-science undermines and belittles the importance of scientifically proven products and technology. Edmeades reviewed international literature on liquid fertilizers derived from natural products that were marketed worldwide. This review included 28 such products tested in 810 trials across many countries. Edmeades summarised his findings in this manner:

> "***...the only possible conclusion was that these products are ineffective when used as recommended – in fact they were no better or worse than water***"

Procurement

In Uganda, a story is told of a smallholder farmer who lost an entire maize crop after using a fertilizer product which he later realised was fake. Elsewhere, sugarcane growers are said to have fallen victim of a similar trap where they were sold sand material that hardly dissolved in water. A personal communication with one Extension personnel led to the conclusion that smallholder growers in the South who procure farm inputs through the mill are marginally exposed to these fake products compared to growers buying directly from suppliers.

Challenges

The challenges that are associated with these pseudo-science products include:

- Growers' time and money is wasted on these products and misleading advice.
- Loss of productivity and profitability resulting from their use.
- Grower confidence on scientifically proven products is eroded.
- The costs of testing and reproving them. Testing resources are wasted.

Approved list

Growers are encouraged to contact their respective Extension Officers before purchasing or using products that are suspect. As a continuing practice, SSATS produces and distributes to Extension, a list of approved chemical products that growers may use on annual basis.

By Njabulo Dlamini (Agronomist)

SWAZILAND SUGAR ASSOCIATION TECHNICAL SERVICES

EXTENSION NEWSLETTER

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"...growers have been able to buy subsidized fertilizer material through the premium, build field toilets, up to standard ablution blocks and chemical storage areas."

Pseudo-science products

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MANAGING WATER IN THE WINTER SEASON

Introduction

The industry received reasonable rainfall during the summer of 2016/17 after the end of the El Nino conditions which had depleted water resources in the country. Although river and dam levels increased, the industry is still "not out of the woods" yet - in terms of water availability. This is especially crucial as it is the beginning of the winter season when rainfall is usually at its lowest or none. It is therefore very important for the growers to continue using water judiciously to spread the available water until the onset of the next rains. It is worth noting that the likelihood of an El Nino weather pattern returning this year has decreased, according to the South African Weather Service forecasting model.

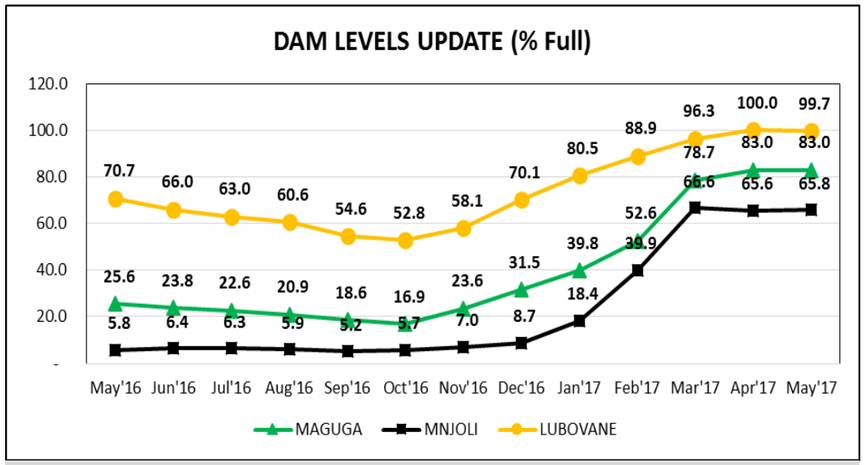

Figure 1: Dam levels from May 2016 to May 2017

Update on the water situation

The water levels have improved after the El Nino conditions. Most rivers (Komati, Great Usuthu and Mbuluzi) are still flowing reasonably. However, other rivers of importance to the sugar industry such as the Ngwavuma and Mhlathuze are flowing desperately low and are affecting the growers extracting irrigation water directly from these rivers.

The main storage dams used by the sugar industry have improved. As of 31 May 2017, Maguga dam was at 83,0% from 25,6 % same time previous season, Mnjoli at 65,8% compared to 5,8%, and Lubovane at 99,7% compared to 70,7% as shown in Figure 1.

Winter irrigation water requirement

Growers are reminded that the crop water demand in winter is at its lowest, and the evapotranspiration (ET) values are low as shown in Figure 2. Therefore, there should be less irrigation during winter compared to the summer months, to save water, prevent the effects of over-irrigation, minimize electricity usage at a time when it is at peak, and still achieve optimum yields.

Winter irrigation strategy

Despite the improvements in water levels, growers should continue to follow the

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MANAGING WATER IN THE WINTER SEASON CONT.

water saving strategies accordingly. Irrigation scheduling practices must be adhered to. Available irrigation scheduling tools such as Profit and loss, Canesched, and Canepro must be used. Growers are encouraged to install Canesched in their computers to assist them in accurately scheduling their irrigation and keep reliable records. This service is currently done for free by the Irrigation Section at SSA Technical Services at Simunye.

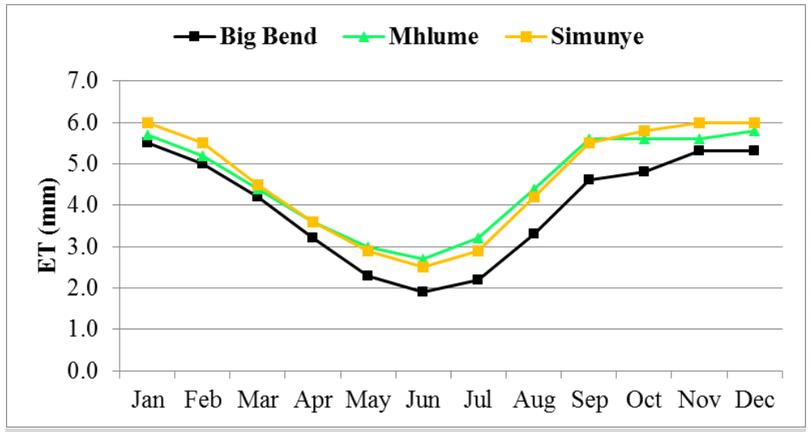

Figure 2: Long-term mean crop water demand for the Swaziland sugar industry

The winter irrigation strategy is to irrigate the field to the soil's total available water (TAW, formerly known as TAM) after harvesting, then delay subsequent irrigations according to Table 1. It is further recommended that after the first or second irrigation, the next irrigation should be delayed until the 5th leaf (stem elongation) stage.

Conclusion

Although water levels are better this year compared to previous season, growers must not think that the drought is over. Water must still be used carefully and cautiously. Irrigation scheduling must be strictly followed and the water saving strategies practised consistently.

Table 1: Water-saving winter strategy

Harvest month	Month of the year and irrigation events									Total irrigation events	Savings (%)
	April	May	June	July	Aug	Sep	Oct	Nov	Dec		
Apr	1	1			1	1	1	2	2	9	39
May		1	1			1	1	2	2	8	41
Jun			1	1			1	2	2	7	35
Jul				1	1		1	2	2	7	29
Aug					1	1	1	2	2	7	16
Sep						1	1	1	2	5	27
Oct							1	1	1	3	39

By Noah Dlamini (Irrigation Engineer)

FAIRTRADE CERTIFICATION: SUCCESSES & CHALLENGES

Introduction

Fairtrade is a global movement which addresses the injustices of conventional trade by supporting smallholder farmers and workers to secure better terms of trade. This in turn enables them to access markets, decent working conditions and fairer terms of trade. There are currently 7 Fairtrade certified farmer organizations in the Swaziland sugar industry. There are certain requirements that these smallholder cane growers should meet in order to be certified.

Fairtrade certification guarantees that producers receive prices that cover the average costs of sustainable production and provide a fair-trade premium to be invested in projects that enhance social, economic and environmental development.

Fairtrade certified farmers receive a Fairtrade premium ($60/ton of sugar) more than the normal receivable price for every ton of sugar sold on Fairtrade markets.

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FAIRTRADE CERTIFICATION: SUCCESSES & CHALLENGES CONT...

This premium helps growers comply with the Fairtrade standard (and invariably with other standards that are already in place within the sugar industry). The premium also helps farmers improve productivity thus increasing the quantity of sugar sold in the Fairtrade markets.

Figure 3: A recently completed ablution block at Madlangemphisi Farmers Company

Successes

There are projects that have already been implemented through the use of the Fairtrade premium. The Komati Downstream Development Project (KDDP) affiliated growers have been able to buy subsidized fertilizer material through the premium, build field toilets, up to standard ablution blocks and chemical storage areas. Figure 3 shows an ablution block built by Madlangempisi Farmers Company. The MMN (Mankontjane-Makhabeni-Ntisheni) group of farmers, as part of their corporate social responsibility, have been able to build a house for a destitute family (Figure 4). In addition, this group of farmers managed to construct an ablution block and field toilets as well as gravel their haulage roads.

Figure 4: A recently completed house at Sihhoye for Gogo Thobela next to a tent which was donated by Red Cross previously used for accommodation

Challenges

Deciding whether to get certified is an important business decision. For this purpose, external audits are conducted annually at a fee. Fairtrade producers and traders are inspected and audited by FLO-CERT, an independent certification company. Continuous improvement should be demonstrated in order to maintain certification. However, maintaining certification proves to be a major challenge for some growers. The continuous trainings afforded to growers appear to help to a certain extent in this regard. Other challenges that seem to threaten maintaining certification include corporate governance issues, accountability and use of Fairtrade premiums in a sustainable manner. Luckily, these are being addressed by such interventions as grower trainings and introduction of accounting policies at association level.

Conclusion

Owing to the benefits associated with Fairtrade certification, growers are strongly encouraged to endeavor to maintain their certification. The grower capacity building initiatives such as training and coaching by relevant stakeholders should continue. Increasing the volume of sugar sold to Fairtrade markets is encouraged since that would increase the amount of money receivable through the Fairtrade premium. In return, this will ensure that the objective of farming in a sustainable manner is achieved.

By Sive Sikhondze (Extension Officer - North)