

WEATHER OUTLOOK

Rainfall Received

The Swaziland sugar industry has received below average rainfall since the beginning of the 2014/15 rainy season (Figure 4), despite weather forecasts having predicted normal to above-normal rains during this period. Good rains were last received in December 2014, except in the Big Bend area which has continued to receive less than the long-term-mean (LTM)

year appears to be the most hard hit (Figure 5). This could be attributed to the effects of climate change. Where there are high inefficiencies in irrigation systems, cane growth and yield are likely to be badly affected.

Rainfall forecast

The seasonal rainfall forecast for 2014/15 season indi-

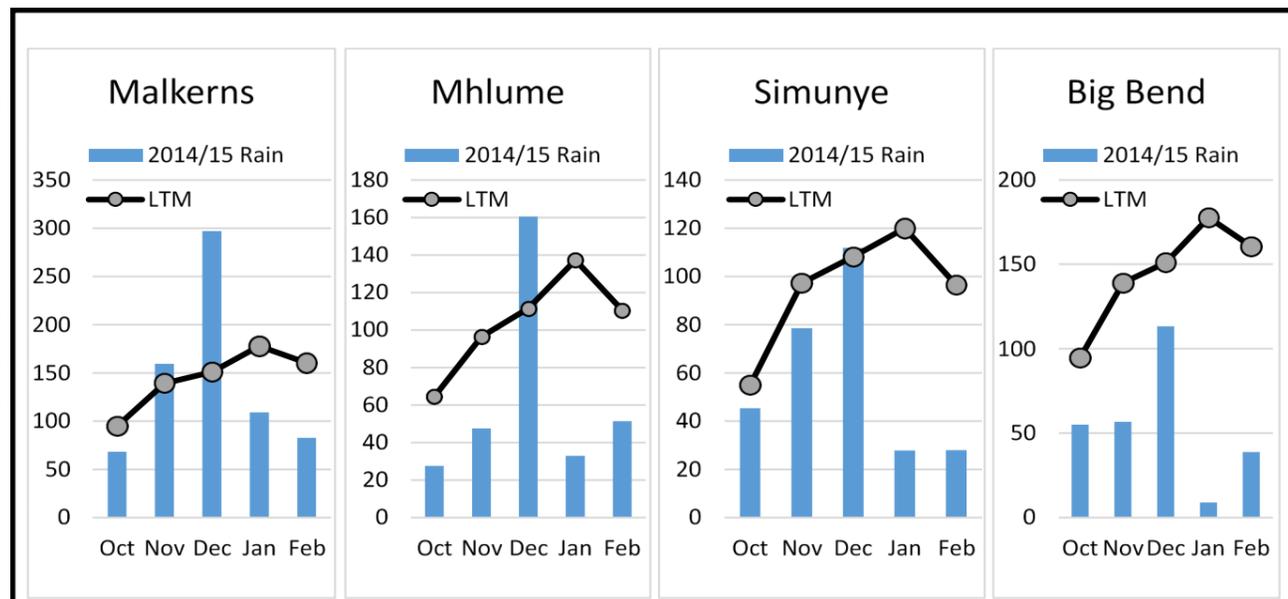


Figure 4: Sugar industry monthly total rainfall (mm) by regions

rainfall throughout the summer period. This situation, unless it improves, will impact negatively on water availability. Growers are therefore encouraged to schedule their irrigation accurately, and prevent any water losses by leaks, over-irrigation or in any other way.

cates a near normal rainfall for March 2015. Temperatures are also expected to be above normal. Growers are advised to keep track of the shorter time scale (daily/weekly) forecasts, as they may change, and to adjust their crop water management as needed.

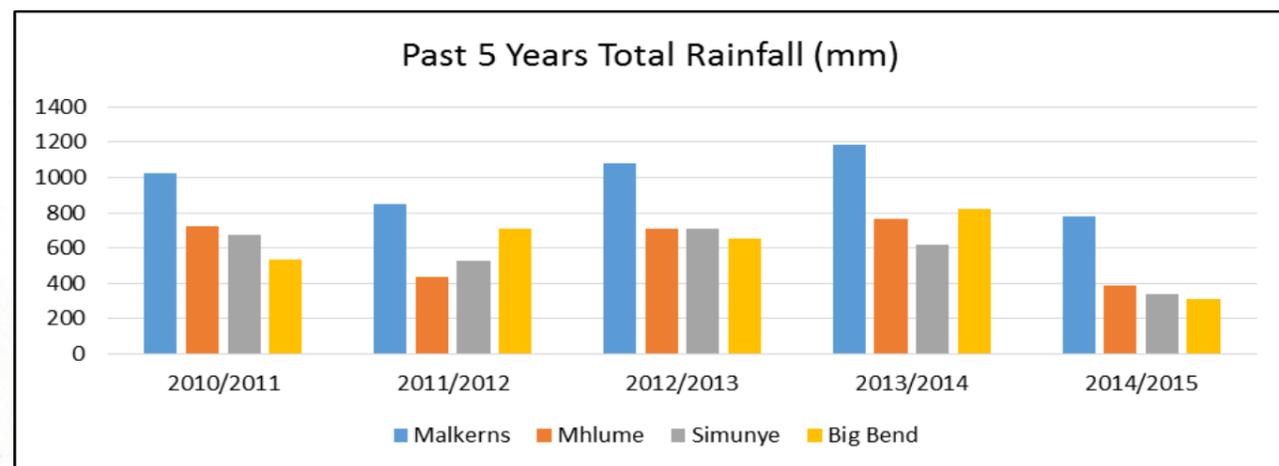


Figure 5: Total rainfall received in the past five season in the sugar industry regions

The past 5 years have seen a general decline in total rainfall received in the sugar industry, and the current

By Noah Dlamini (Irrigation Engineer)



EXTENSION NEWSLETTER

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REPLENISHING SOIL MOISTURE AFTER HARVESTING

INSIDE THIS ISSUE:

- 1 Replenishing soil moisture after
- 2 Rocks in cane at harvesting
- 3 Incidences of Leaf Folder Moth (*Marasmia trapezalis*)
- 4 Weather outlook

Be on the lookout for the Leaf Folder Moth

Delayed 1st irrigation
 "...will affect plant ratooning, reduce stalk population and yields"
Rocks on cane
 "...affect not just the mill but other growers as well"
Leaf Folder Moth
 "...greenish-yellow larva with brown head capsule which feeds on the leaves"
Weather outlook
 "...near normal rainfall for March 2015"

Introduction

April is the time of the year when harvesting for the new season begins. It is also the time when evapotranspiration (ET) is on the decline as shown in Figure 1.

is on dry off, maintenance of the irrigation system should resume immediately. In the case of irrigation equipment that cannot be removed from the field, maintenance should commence immediately after harvesting.

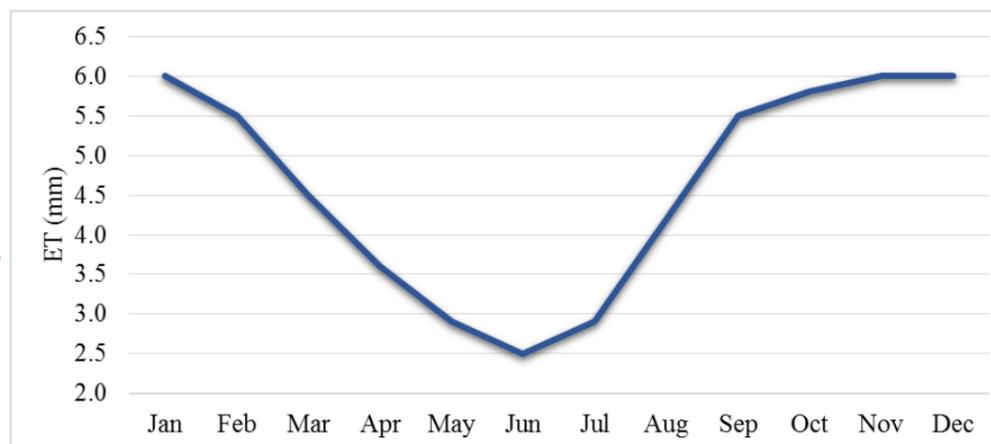


Figure 1: Crop water demand for the Lowveld

Delays

Since the soil is likely to be completely dry after harvesting due to the drying-off process (unless there has been rainfall before harvesting) growers must not delay the first irrigation during this period. It is therefore important to apply the first irrigation up to field capacity within a week after harvesting. Lengthy delays will affect ratooning and hence reduce plant population because any regrowth under very dry conditions results in die back which in turn will have adverse effects on yields. For that reason back to back irrigation events are recommended to bring the soil moisture to field capacity or up to the full Total Moisture Available (TAM) of the soil. This is because the young ratooning crop needs moisture to develop a tangible roots system. To ensure that the first irrigation is applied on time, it is important that once a field

Irrigation scheduling

Once the soil is at field capacity, irrigation scheduling should be followed. In simple terms irrigation scheduling means the decision of when to apply water, and how much water to apply. It is a day-to-day management of irrigation. Deciding when to irrigate is ultimately a function of soil water content or soil moisture. Soil moisture changes largely in response to water inputs in the form of rainfall and irrigation; and water removal in the form of ET. Irrigation can be scheduled by estimating soil moisture. This is achieved by calculating a soil water balance using ET, previous soil water content and added water either by irrigation or by rainfall or both. The crop water demand varies according to season of harvest and the growth stage of the crop. Sugarcane has different canopy factors for each

REPLENISHING SOIL MOISTURE AFTER HARVESTING (CONT.)

growth stage upon which ET should be scaled down to the appropriate water demand of the crop at that given growth stage by multiplying it by the canopy factor before it is subtracted from the previous soil moisture. Table 1 shows canopy factors by harvest month for the Lowveld. The irrigation scheduling

Table 1: Canopy factors by harvest month for the Lowveld

Harvest month	Current month											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Apr	1	1	1	0.4	0.4	0.6	0.78	0.93	1	1	1	1
May	1	1	1	1	0.4	0.4	0.4	0.49	0.76	0.96	1	1
Jun	1	1	1	1	1	0.4	0.4	0.4	0.46	0.8	1	1
Jul	1	1	1	1	1	1	0.4	0.4	0.4	0.73	1	1
Aug	1	1	1	1	1	1	1	0.4	0.4	0.58	0.9	1
Sep	1	1	1	1	1	1	1	1	0.4	0.4	0.7	0.95
Oct	1	1	1	1	1	1	1	1	1	0.4	0.4	0.78
Nov	0.81	1	1	1	1	1	1	1	1	1	0.4	0.46
Dec	0.45	0.83	1	1	1	1	1	1	1	1	1	0.4

must take into account constraints of the irrigation system design in order to provide an optimum soil

causing damage to cane knives and causing factory moisture for an optimal yield. Moisture stress can be avoided by maintaining the soil moisture content between field capacity and half of the soil TAM.

With the prevailing weather conditions resulting in diminishing water resources, growers are advised to use water sparingly. Strict irrigation scheduling should be followed at all times. Where possible, spreading the available water over a longer period will be of great benefit in minimizing yield decline due to lack of water.

By Patrick Mkhalihi (Irrigation Officer)

ROCKS IN CANE AT HARVESTING

Purpose

The primary purpose of this article is to create awareness to growers on the importance of delivering cane with no rocks to the mill and to make sure that rock removal from fields is done continuously.

The mill requires cane from growers that is of good quality. Purity should not be 5 units below Mill Group daily average while greater than 70%. Tops, trash, roots and soil should all be no more than 5% in weight and the Mill Group Rules accept that this will be judged by visual observation by the relevant authorities. Cane delivered to the mill other than emergency cane should not be more than 80 hours after burning without extenuating circumstances. In all instances, growers should try to achieve a burn/harvest to mill delay of no more than 45 hours. As for rocks in cane, the target is zero rocks. The number of rocks delivered to the mill is measured in terms of the number of significant rocks per 1000 tons of cane.

Damage caused by rocks

Rocks cause damage to the mill which ends up affecting not only the mill but also other growers delivering in that day. The rocks affect the mill by

down time which is a huge cost to the Miller. Other growers delivering cane are negatively affected by the downtime as burn-to-crush delays worsen. Their burn-to-crush delays tend to be higher than what has been planned. Mill stoppages in essence push harvesting further down to the rainy season, where conditions are not favourable to the growers, the millers, cutting and transporting contractors.

Benefits of cane without rocks

As mentioned above, the reduction in cane knives damages (something which is possible), and reduction in downtime is a huge benefit to both the factory and growers in terms of cost through improved factory downtime. This is because if the crushing is seamless, the harvesting operations are done at high efficiencies.

Field day

In a bid to create awareness on the problems caused by the rocks in cane, Ubombo Sugar Extension and Cane Supply hosted a field day on the 18th of February 2015. The theme was *“Towards a better 2015/16 season in terms of crop improvement, smooth harvesting and crushing”*. Close to 100 growers including extension officers attended the field day. The field day included a discussion on the

ROCKS IN CANE AT HARVESTING (CONTINUES)

effects of rocks in cane to the mill, a visit to the mill for visual inspection of the rocks and to appreciate the damage caused by the rocks at the mill. There was also a visit to the fields where a discussion on post harvest operations was held and the Section Manager of Usutu section led the discussion. The post harvest operations included rock removal after harvesting.

Useful tips to avoid rocks in cane during loading.

The field visit was undertaken at Usutu section where the transport Manager shared with growers how Ubombo avoids picking up rocks during loading. This process starts during cutting. While cane cutters are cutting there are people moving around the field removing rocks in front of the cane cutters. Cane cutters are educated not to lay a windrow on top of a rock. If the rock is small, they have to remove it and place it where there is no windrow. If it is too big to remove, they leave space where the

rock is and continue laying the windrow in front of the rock then mark the rock area by putting a cane stalk upright, so that the loader operator will know that the marked area has a problem and hence he will be more vigilant when loading.

During gleaning, the gleaners are also vigilant of the rocks, they remove any rocks they spot on the windrow.

At loading the loader operator is trained in such a way that if he feels the weight he is lifting to be heavier than normal, he should not load it onto the tractor but instead drop the load and spread it to check the cause of the abnormal weight.

After harvesting has been completed, the grower then removes all the rocks piled up in the field and dump them away from the field.

By Mfanzile Mabila (Extension Officer, Ubombo Sugar Limited)

INCIDENCES OF LEAF FOLDER MOTH (*MARASMIA TRAPEZALIS*)

What is it?

Incidences of Leaf Folder Moth (*Marasmia trapezalis*) have been recorded in the North mainly on stressed cane. This is a greenish-yellow larva with brown head capsule which feeds on the leaves. The Leaf Folder Moth is a common pest and widely



Figure 2: Larva stage of the moth on cane leaf

spread across the globe.

Damage caused

This pest feeds on many host plants. It has been recorded in a wide range of sugarcane varieties (in South Africa), maize, sorghum and rice. Symptoms include longitudinally folded leaves with red chlorotic patches on the exterior, patches of longitudinal whitish feeding scars on the inner leaf surface. Single larva with frass is found on the folded leaf.

Control

The pest is controlled by natural enemies and previous infestations in South Africa have shown that cane normally recovers from early attacks. Surveys done in South Africa revealed that a number of natural enemies are present to keep the populations of the pest below economic injury levels.



Figure 3: Natural enemy of the moth (Source: SASRI, 2011)

Monitoring and documentation

Even though this is regarded as a minor pest, growers are encouraged to report cases of infestations to the Extension Officers and Crop Protection at SSATS for monitoring purposes as insects are known to become problematic under favourable conditions.

By Mphumelelo Ndlovu (Crop Protection and Extension Officer)