Sugarcane detrashing and field traffic control as factors of crops longevity on Reunion Island?

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Abstract

Sugarcane cultivation is a major environmental concern on Reunion Island. By the 2010s, the ± 25,000 ha of the sugarcane belt covered about 57% of the agricultural land. Of this, 75% was cut by hand. Sugarcane detrashing has been recognized for almost 20 years as an agri-environment practice (in different forms and extents). The Ministry of Agriculture currently provides subsidies to farmers who voluntarily subscribe to agri-environment practices - 675 €/ha in the case of the sugarcane detrashing, committed for five years on a maximum of 10 ha. In 2016, 25% of cane growers, representing 15% of the total sugarcane area, were involved in detrashing.

Sugarcane detrashing involves manual removal of the dry leaves from the stalks during the last months before manual cutting (generally February to July). It rejuvenates the soil mulch and aims to enhance soil conservation, moisture and fertility, and reduce herbicide usage. Commitment to detrashing also includes retention of all trash in the field at harvest and covering areas of bare soil subsequent to mechanical cane loading. Sugarcane detrashing is not a research outcome, but rather a practice often undertaken by growers without much input and/or knowledge from researchers. In 2013, there was a request by an agricultural education partner for detrashing to be included in a management of cane borer trial. It was considered suitable for their learners as it assisted in reducing penetration by stalk borers.

A farm survey was undertaken in 2014 as part of a student internship. This included interviewing 21 farmers known to extension officers as 'good detrashers'. The intent was to increase knowledge of the growers themselves, their practices and their perceptions about sugarcane detrashing. It appeared that these detrashers were predominantly small-scale farmers mainly involved in growing sugarcane. Their agricultural and environmental performances were significantly higher than the average grower in terms of cane yield and sugar content, herbicide dependence, and longevity of their crops. A 'field cleaning' effect was consequently recognized as residual weeds are removed during the detrashing activities. The growers indicated that insect populations and rat infestations were reduced. There was an interactive effect between sugarcane cultivars and detrashing particularly in terms of moisture conditions and the occurrence of logging. Apart from the danger of fire ants and wasps, labour requirements remain the main constraint for detrashers.

In 2016, a second student internship investigating soil carbon (C) resulted in additional information on factors affecting sugarcane longevity. Interviews with eight farmers, known for the longevity of their crops, revealed that field traffic control during harvest was one of the most important factors, even with hand-cutting through careful loading and tracking operations. Higher crop performance occurred over a 30-year period with yields in excess of 100 t/ha and high sucrose contents. In addition to appropriate choices of cultivars, longevity of sugarcane crops on Reunion Island results from a range of good cultural practices that include and/or field traffic control.

Keywords: sugarcane, Reunion Island, detrashing, weed control, herbicide saving, labour constraint, field traffic control, crop longevity.