

## Short Communication

# Outbreaks and Severe Damage of the Migratory Locust (*Locusta migratoria*) (Orthoptera: Acrididae) on Sugarcane Fields in Iran

Nikpay A\* and Sharafizadeh P

Department of Plant Protection, Sugarcane &amp; By-Products Development Company, Iran

\*Corresponding author: Amin Nikpay, Department of Plant Protection, Sugarcane &amp; By-Products Development Company, Salman-Farsi Agro Industry, Ahvaz, Iran

Received: April 13, 2020; Accepted: April 24 2020;

Published: May 01, 2020

## Short Communication

Sugarcane (inter specific hybrids of *Saccharum*) is widely cultivated for production of sugar and several by-products in tropical and subtropical climates [1]. This crop is considered as a perennial industrial plant which has a pivotal impact in socio-economic issues in many countries. The majority of sugarcane commercial fields in Iran occur in Khuzestan province under fully irrigated systems [2]. As a mono-culture, sugarcane is vulnerable to a wide range of biotic stresses including insect and other arthropod herbivores which can negatively affect both sugarcane quantity and quality [2,3]. Grasshoppers are possibly the foremost dangerous and destructive insect pests of agricultural, horticultural and rangeland crops. The current study illustrated the occurrence of locust (*L. migratoria*) outbreaks in sugarcane fields and efficient control strategies in south west part of Iran under sugarcane agro-ecosystems.

The migratory locusts can infest and feed on graminaceous crops such as sugarcane, rice and wheat and this pest has been reported from different countries [4-7]. Under sugarcane agro-ecosystem in Iran, the population dynamics of locusts are usually low and they considered as periodical pests of sugarcane [2]. In response to climatic change, limitation of food and manipulation of natural habitats, population density of locusts will modify and show different type of polyphenism [4].

The migratory locust overwinters as eggs on capsules under the soil surface. The eggs hatch in the spring and the nymphs gradually appear. The Asian locust nymph's period is 40 to 45 days. During this time, nymphs feed on plants of the Poaceae family (wheat, sugarcane and rice) and weeds, especially nuts edges. Under sugarcane fields in Khuzestan province the migratory locust has up to three generation per year [5]. *Locusta migratoria* has 5 nymphal stages, the second and third age nymphs are black and the other nymphs are yellow or brown.

On spring 2019, the initial populations of *L. migratoria* were colonized on sugarcane fields and after one month the population dynamics had reached to economic injury levels and caused severe damage to sugarcane fields. Under severe damage all parts of sugarcane were consumed by locusts and only leaf midrib were left



**Figure 1:** Capulation and ovipositoin of *L. migratoria* (Photos credit: Nikpay A and Majd GS, July 2019).



**Figure 2:** Population density and severe damage of *L. migratoria* on sugarcane Variety CP69-1062 (Photos credit: Nikpay A, July 2019).

(Figure 1&2). This high population density and outbreak attributed to summer drought, high amount of rain during previous winter, retardation in sugarcane fields harvesting, severe flood during spring and failure to carry out agricultural operations were lead in severe outbreak of migratory locusts. For controlling of *L. migratoria* on sugarcane fields, insecticidal application by aircraft, drones, tractor sprayers and knap-sack sprayers were used. Timely post-harvest cultural practices especially on ratoon fields, field survey and precise monitoring and insecticidal application even on low population of locusts are highly recommended to reduce locust populations.

## References

1. James G. Sugarcane. 2<sup>nd</sup>editionn. London. Blackwell Publishing. 2004.
2. Nikpay A, Goebel FR. Major sugarcane pests and their management in Iran. Proceedings of the International Society of Sugar Cane Technologists. 2016; 103-108.
3. Goebel FR, Nikpay A. Integrated pest management in sugarcane cropping systems. Rapisarda GE, Cocuzza M, editors. In: Integrated pest management in tropical regions. CAB International. 2017; 113-133.
4. Uvarov BP. Grasshoppers and locusts. London. Centre for overseas pests research. 1977.

5. Khajezadeh Y, Azmayeshfard P. Investigation on biology of *Locusta migratoria* and effects of the parasitoid *Scelioflavibarbis* on the grasshopper population. *The Scientific Journal of Agriculture*. 2005; 27: 9-22.
6. Tanaka S, Zhu DH. Outbreaks of the migratory locust *Locusta migratoria* (Orthoptera: Acrididae) and control in China. *Applied Entomology and Zoology*. 2005; 40: 257-263.
7. Yamagishi MY, Tanaka S. Overwintering biology and morphological characteristics of the migratory locust, *Locusta migratoria* after outbreaks on Iheya Island, Japan. *Applied Entomology and Zoology*. 2009; 44: 165-174.