

# POLICY BRIEF

September 2019

## Passion fruit woodiness disease: killing the passion of smallholder farmers in Kenya



### Key messages

- Kenya earns close to KES 2.1 Billion shillings from 60,000 tons of passion fruit produced annually
- The fruit has high quick returns of about KES 600,000/acre
- Passion fruit woodiness disease infects many orchards in Kenya causing huge losses seriously reducing farmers income
- The disease spread is wide and is easy through exchange of grafted planting materials and handling.
- Policy guidelines will help regulate nursery inspection and certification of planting material including movement from county to county to reduce disease

## Passion fruit: A fruit of great economic value

Passion fruit is the third most popular fruit in Kenya. It is an attractive, nutritious fruit crop appreciated for fresh consumption and industrial processing. Passion fruit growing is an important economic activity in 15 Counties in Kenya. The annual production is about 60,000 tons valued at KES 2.1 billion. It is a profitable crop grown on small land units even with farmers able to earn a living from as little as 0.3 to 0.6 of an acre. The high profits of KES 600,000 per acre are 12 times more than that of maize in nine months of transplanting (Brittill et al., 2012) with expected increase in profits during the second and third years of harvesting under efficient management (Fintrac, 2009). Passion fruit is a suitable cash crop offering employment, with a potential to improve food security and reduce poverty among the resource poor farmers (Kibet, 2011). Passion fruit is in high demand with a market potential of 120,000 Metric ton (MT) which is projected to grow to 146,000 MT by 2025. However, only 20-30 % of the fruit produced locally meets export quality. Yet it is the most expensive Kenyan horticultural export crop in the United Kingdom market. Pests and diseases limit increased passion fruit farming (Gaturuku et al., 2012). Woodiness viral disease is the most devastating hindering profitable passion fruit production. It is widespread in nearly all growing areas in Kenya. This and other plant pests and diseases limit the economic lifespan of the orchards to a maximum of 24 months.



## Woodiness: A devastating disease that spreads easily



Passion fruit production reduced in the last decade, attributed to woodiness disease prevalence. The disease reduces plant growth, causes hardening of leaves and fruits, lowers yield and quality. In Kenya, most of the passion fruit planting materials are propagated by seeds or by grafted seedling sourced from nurseries. The nurseries are operated as small and medium scale businesses. A few government/ institutional nurseries provide planting materials for farmers. Woodiness disease spreads through the grafted plants derived from infected plants and by insect carriers as they move from plant to plant feeding. Woodiness causing germs can also be spread by handling diseased plants and in pollen. Insect disease carriers (aphids) occur in the orchards throughout the year but most abundant during the food cropping season and when weeds are vigorously growing. Disease spread is more during this period because of high insect activity in the field. Disease causing microbes are spread from plant to plant and infection within the first two months of planting reduces yield to 2.4 kg/plant (80% reduction) while infection at the eighth or ninth month after transplanting reduces yield to 12kg/plant. The orchard life is also reduced from 5 to 7 years to 2 years. However, up to 100% loss can take place if the disease infects the crop at an early stage. Reduced fruit production causes huge losses to farmers and industrial processors weakening the economic capability of the affected counties.



## Managing passion fruit woodiness disease

Current management strategies of woodiness disease are unsuitable. They rely on intensive use of pesticides which are limited in efficacy. Pesticides contaminate both the produce and environment. Safe and high-quality passion fruits have a high demand and are suitable for the export market. Planting healthy seedlings and protecting them during the first six months after transplanting guarantees better returns even if woodiness appears later. Accurate and precise disease testing tools especially the field testing kits are critical to reduce the effect of woodiness disease. By detecting the disease germs early, farmers will remove the infected plants early before the germs are spread while pruning or by carrier insects thereby reducing multiplication and spread.



The detection tools should be adopted by national research and plant health institutions to certify nurseries and help avail healthy seedlings. Businesses involved in passion fruit nursery management should also be trained in producing healthy seedlings to sell to farmers. The same should be certified and registered to supply healthy certified seedlings to farmers. Any uncertified businesses should not be allowed to operate. In addition, seed laws and rules by the county governments will help regulate nursery inspection and certification of planting material including the movement of passion fruit seedlings from one county to another. The insect disease carriers can be controlled with a combination of methods that reduce the use of pesticides.

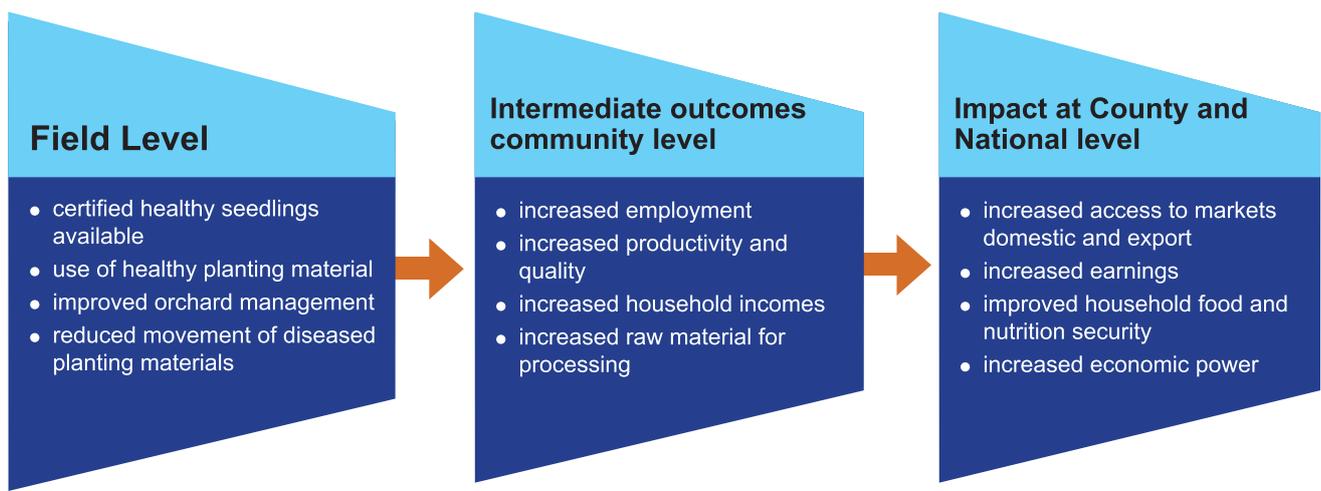
## Sustaining farmers passions and incomes: proposed policy interventions



Woodiness disease and insect carriers know not county boundaries crossing without regard to man-made borders. Exchange of grafted seedlings for planting, spreads the disease from one county to another. This exposes disease-free orchards and areas to germs creating new disease problems. Action against spread of woodiness disease is needed to stop losses among small holder farmers. At the national and county level, the following should be instituted to control the spread of passion fruit woodiness disease that is reducing farmers' income:

- Inspection and certification of nurseries selling passion fruit seedlings by KEPHIS to reduce disease spread through contaminated seedlings.
- Department of Agriculture to provide guidelines for the development and propagation of disease-resistant varieties and seedlings for adoption by farmers and suitable detection tools.
- County governments to develop guidelines for nursery certification and plant movement from one county to another.
- County governments to train, coordinate and raise awareness among farmers and organizations selling seedlings on preventive measures.

- KEPHIS to regulate the movement of planting materials from county to county to prevent the spread of diseased materials across the country.
- Counties and farmers should dedicate resources to develop strategies using various techniques to manage insect carriers such as reflective polythene mulches and yellow traps and reduce the use of pesticides.
- Farmers to use healthy seedlings and natural methods to trap insect carriers as good practice to manage diseases.
- Extension officers to encourage farmers to use and adopt tolerant varieties to delay disease entry and maximize profits through extended orchard life span
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## CONTACT ADDRESS

Dora C. Kilalo,  
 Dept. of Plant Science and Crop  
 Protection,  
 University of Nairobi, Kenya.  
 EMAIL: ngachalor@gmail.com

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