

CLIMATE CHANGE, COVID-19 AND THEIR EFFECTS ON AVOCADO, POTATO, STRAWBERRY AND BASIC GRAIN CROPS

Presenter

Asociación de Productores Agropecuarios de Intibucá - APRAIN

Description



In Honduras climate change is affecting farmers mainly by lowering the chances to know with exact timing what is happening with the climate and what are its effects. Strong storms with hurricane winds have worsened the current state of rural roads, causing landslides on main roads, damaging the transport of producers and production from farms to local and national markets. Municipal and national economic and human resources that could support the improvement of these roads are focused on serving the health sector due to the pandemic.

Below a description of the effects of climate change and COVID-19, on several crops:

Avocado:

Climate change impacts:

- Increase in fungal diseases due to sudden changes in precipitation, temperature and relative humidity present in the environment. For Example: *Phytophthora*.
- Presence of new insect pests, like: *Schistocerca cancellata*.

COVID-19 impacts:

- Loss of plants in nurseries due to the fact that producers cannot circulate due to quarantine.
- Considerable decline in established areas of new plantations.
- Difficulties in marketing and selling the fruit to the main businesses in the country.

Potato:

Climate change impacts: it has been seen that important pests, such as Paratuberculosis, is no longer appearing only during the summer but also in the winter, which shows us that the pests have been adapting to climate change. This pest increases the production costs of this tuber and reduces its price in the market.

COVID-19 impacts: in the first months of quarantine the commercial houses closed, the means of transport and the flow of inputs was reduced, causing considerable losses in the cultivation of this and other vegetables.

Strawberry:

Climate change impacts:

- In 2018, 4.9 hectares of this crop were lost in Honduras due to agroclimatic factors that favored a high proliferation of fungal diseases: *Alternaria*, *Pestalotia* and *Fusarium*.
- The current strawberry varieties require more hours of cold temperature to achieve excellent production, which is why work is still being done on the incorporation of neutral day temperature varieties with more resistance to fungal problems.

COVID-19 impacts:

- Considerable losses in the sale of fresh strawberries have occurred, and producers had to sell frozen strawberries at a lower price.
- Delay in the process of acquiring new materials from the USA for new crops to be planted.
- Increase in the cost of inputs such as fertilizers and agrochemicals for the management of pests and diseases.
- Scarce availability of seeds.
- Lack of transportation to other markets.
- Lack of workers in the farms.

Basic grains:

Climate change impacts: pests mutate and present an impact on crops, among them is the spread of exotic pests, which cause an increase in phytosanitary surveillance. Example: Central American Flying Locust (2020), endemic in Central America.

Below a description of crop related best practices implemented:

Strawberry crop:

- During the pandemic, models of protection structures (Semi-Greenhouses) has been incorporated for production, thus controlling the moisture that accumulates due to severe winters or severe drought caused by the effects of climate change. This also allows safer production by controlling the micro environment within the greenhouse.

- 2 new varieties of strawberry will be incorporated (Festival & San Andrea), with technical assistance and monitoring of market for fresh fruit and industry (project implemented with the Technical Mission of Taiwan in Honduras (ICDF) and SAG - DICTA (Secretaría de Agricultura y Ganadería - Dirección de Ciencia y Tecnología Agropecuaria).

In potato cultivation:

- New varieties have been incorporated that are more resistant to late blight, which is also a problem with sudden changes in climate, thus the seed of these varieties is already being produced locally (this project was implemented thanks to CIP Peru and Technical Mission of Taiwan in Honduras (ICDF)).

In basic grains:

- the SAG, through DICTA, has researched and now has available earlier and more drought-resistant varieties of corn and beans with lower yields, which helps to ensure that corn is not damaged more frequently by the heavy rains.

In general, the biggest challenges that farmers in Honduras face in the short term are: to continue producing without getting infected with COVID-19, to produce more in less area, to sell the products through electronic means in an efficient way. In the long term, the challenge they will face is to move from traditional agriculture to smart agriculture.

Results

The strawberry sector is being reactivated, starting with the provision of strawberry plants through the SAG with the variety resistant to pests and diseases such as Pestalotia, Alternaria and mites, benefiting 60 producers in the country with the bonus of productive solidarity. With the importation of mother plants and their production of seedlings at the national level through the SAG DICTA and ICDF TAIWAN farmers will be able to reactivate the sector in 2 years.

Fruit crops such as avocado that have developed thanks to the efforts of SAG through ICDF Taiwan in Honduras have come to leverage the considerable losses of Honduran coffee growers in previous years, due to the fact that coffee and avocado are now being produced in the highlands of the country as an area of farm diversification.

The Government of the Republic is managing the funds through INVESTH in order to build the first 20 Semi-Greenhouses with a commercial strawberry production model.

In the potato sector, this year, SAG will benefit 500 producers with certified seed potato of a national production variety to mitigate the effects of the pandemic in this sector, establishing more than 30 blocks.

With the implementation of the BSP (Bono Solidario Productivo), more than 2000 producers of basic grains, such as beans, will benefit of it, ensuring production this year.

Climate smartness

These practices are focused on the increase of climate adaptation capacity, and productivity increase. The greenhouses and improved seeds tolerant to drought, pests and diseases allows production stability and farmers' incomes during seasons with high climate variability.

In the case of avocado crop, it is recommended to implement practices such as the use of grafts with patterns that are tolerant of drought or flooding (whatever the case may be) and others from those identified by Sova et al., 2018.

Likewise, for all the productive systems described, it is recommended to facilitate farmers' access to agroclimatic information⁷, so they can understand climate behavior and the relation with their crops. This will enable them to make decisions about planting dates, the type of varieties to use, and measures to implement to reduce their climate-related risks.

⁷ It is advisable to use climate information from official institutions. However, in case this information cannot be accessed, it is possible to use global secondary information such as CHIRPS (<https://climateserv.servirglobal.net/>). To transfer agroclimatic information, it is advisable to create spaces such as the Local Technical Agroclimatic Committees (LTACs) (<https://www.sciencedirect.com/science/article/pii/S2212096316300298>) and use methodologies such as PICS (<https://climateserv.servirglobal.net/>).