showing that it contributed to osmotic adjustment in potato. The concentrations of MDA and total ascorbate content of leaves varied mainly depending on water availability and genotype, showing that oxidative stress was observed without irrigation. In conclusion, the moderate increase in ambient temperature projected for southern Chile will not adversely affect potato production, however water availability will play an important role in productivity increase under climate change conditions.

6. **Relationship between Guatemalan Moth (Tecia solanivora) adults and elements of climate in the potato crop (Solanum tuberosum L.) in West Sabana de Bogotá, Mosquera, Colombia**

Wilmar Alexander Wilches Ortiz[1], Eduardo Espitia Malagon[1] and Ruy Edeymar Vargas Diaz[1]

1 *Corporación Colombiana de Investigación Agropecuaria (Corpoica), Colombia*

Corresponding author: Wilmar Alexander Wilches Ortiz, wwilches@corpoica.org.co

High levels of pest populations were reported recently in potato crops in Colombia, showing Guatemalan Moth (*Tecia solanivora*) as the most limiting of these. Interdisciplinary approaches are important in dealing with the uncertainty of the behavior of pests and climate conditions. This work aimed to evaluate the effect of climate elements, present in the study zone, on moth adult populations. The experiment was carried out in Mosquera (Cundinamarca – Colombia; 4° 41' 18.84' 'N and 74° 12' 22.67'' W) at 2,560 masl. Three potato crop cycles (cv Diacol Capiro) were established with a monitoring system based on *T. solanivora* pheromone traps. Climatic variables were recorded at a local weather station. Data analysis included Pearson correlation and correlograms. Throughout the study period (2015 – 2017), the fluctuation of *Tecia solanivora* adults exhibited mean positive-correlation with: maximum temperature, day degrees, solar brightness and mean temperature (in order of relevance); and we found mean negative-correlation with precipitation and humidity index (in order of relevance). In climate change scenarios, maximum temperature may be considered the climatic variable of greatest relevance to explain population increase and dispersal of *Tecia solanivora* adults. On the other hand, rain has a negative influence on the adult population of *T. solanivora*, with the greatest number of individuals occurring in conditions of low rainfall.

7. **Evaluation of drought tolerance in native potato (Solanum spp.) under semicontrolled conditions, to mitigate climate change**

Niels M. Ramirez Palacios[1], Agripina Roldán[1] and Jorge E. Jiménez[2]

1 *Instituto Nacional de Innovación Agraria (INIA), Lima, Peru*
2 *Universidad Nacional Agraria La Molina, Lima, Peru*

Corresponding author: Niels Ramirez Palacios, biomar5678@gmail.com

Peru is one of the most vulnerable countries to climate change that causes, among other factors, a loss in water resources availability. This generates a series of climatic alterations, mainly droughts in the Andean highlands, which affect crop production. The search for sources of genetic resistance to water stress is one way to face the challenges of yield increase within this context of changing climate conditions. Lots of native potato varieties grow in the high Andean zone of Peru, with a high potential to mitigate climate change. In this research, 36 accessions of native potatoes (*Solanum spp.)* from southern Peru were evaluated in order to identify drought tolerance under semicontrolled conditions. Three watering conditions were applied 1) watering during the whole cycle with a frequency of three times per week (control), 2) gradual suspension of watering at tuberization onset for 10 days

(mild water stress) and 3) gradual suspension at tuberization onset for 18 days (severe water stress). This screening allowed us to identify 17 accessions that were tolerant to mild water stress and 10 accessions that were tolerant to severe water stress. Accessions A9 and A19 stood out for their resistance to drought, greater biomass accumulation and root architecture. One of the mechanisms that contributes to tolerance is related to less number and stomatal area in tolerant accessions than susceptible ones. The results of this study highlight high-value genetic sources which can be used by potato breeding programs and by conservationist farmers to mitigate the effect of climate change.

8. **Options of potato production stabilization using drip irrigation in the potato production region of the Czech Republic**

Pavel Kasal[1] and Jaroslav Cepl[1]

1 Potato Research Institute, Czech Republic

Corresponding author: Pavel Kasal, kasal@vubhb.cz

The aim of the trials was verification of drip irrigation use under the conditions in the potato production region of the Czech Republic. The verification was performed with specific field trials at the Potato Research Institute, Havlíčkův Brod (460 m a.s.l., cambisol, annual mean air temperature 7 °C, annual mean total precipitation 652 mm). The trials were performed between 2016 and 2017 with two potato varieties: very early Monika and medium-early Jolana. Irrigation pipes were installed after planting into ridges (4.5 cm below the ridge top). Irrigation was automatically started based on soil moisture measured with moisture sensors. Three variants of irrigation intensity were evaluated, starting at various soil moisture levels – 15 % (low), 20 % (intermediate) and 25 % (high). Uniform irrigation rate was 10 mm. Compared to non-irrigated control, a statistically significant potato yield increase was found in almost all cases. For high irrigation intensity the yield increase was 47.5 % (Jolana) and 49,3 % (Monika) in 2016 and 33.1 and 59 % in 2017 due to drip irrigation. Drip irrigation also significantly increased marketable potato yields in both years. On the other quality parameters any negative effect of irrigation was not detected. Based on the results we concluded that using of drip irrigation could also stabilize potato production in regions where irrigation has not been applied so far.

9. **Early Agroclimatic Warning System Prototype (EAWS-Prototype), for potato crops (Solanum tuberosum) in the municipality of Yacuanquer (Nariño, Colombia)**

Douglas Andrés Gómez-Latorre[1], Andrea Onelia Rodríguez Roa[1] and Juan Carlos Martínez Medrano[1]

1 Corporación Colombiana de Investigación Agropecuaria (Corpoica), Colombia

Corresponding author: Douglas Andrés Gómez-Latorre, dagomez@corpoica.org.co

An Early Warning Agroclimatic System Prototype (EAWS-Prototype) for potato crops (Solanum toberosum) was designed and implemented in the municipality of Yacuanquer, department of Nariño - Colombia. Its purpose was to provide a decision-making tool for crop management considering a Climate Smart Agriculture (CSA) approach. The EAWS-Prototype is part of the MAPA Expert System (ES-MAPA), a platform that seeks to improve the adaptation of farming systems to climate change and variability. The ES-MAPA systematizes the most relevant results of the "Models of Adaptation and Agroclimatic Prevention" (MAPA) project, which was implemented in 54 farming systems, in an equal number of municipalities. The ES-MAPA follows a logic that enables the management of agroclimatic risks at three different spatial