The Pinot noir grape is a variety with origin in the French Burgundy with excellent qualities, with medium vigor, with early maturation, not very fertile and lying down, it is very sensitive to fungal diseases, sensitive to mildew and oidium, very sensitive to botrytis, cluster moth, scarring and mites. Pinot noir is implanted in vineyards with incipient grape production and winemaking in the province of San Luis, which has generated demand for information on this variety. In San Luis, the wine industry is developing with special interest, which establishes a need to generate information of a scientific nature on the differences between varieties in relation to vegetative and enological production, health, agronomic behavior, influence of terroir, etc. The plant material was obtained from vineyards of the Sol Puntano, in San Luis city. The objective of this study was to select the best substrate to propagate Pinot noir vine branches, where it could develop a good amount of roots and aerial shots. For this, 100 vine branches with 7 buds were kept cold until their treatment. Under laboratory conditions, they were disinfected with 15% sodium hypochlorite solution and immersed in commercial rooting solution for 15 min. In plastic containers, containing three types of substrate: 1- sand, 2- perlite, and 3- 1: 1 mixture of sand:perlite, the vine branches were placed with three buried buds. They were irrigated with running water and placed in an incubation chamber, at a temperature of 25º ± 2ºC and cycles of 16 h / 8h of light / dark. Root and shoot number data were recorded weekly during three month. The number of roots for vine branches was 15 in sand, 23 in perlite and 21 in sand:perlite. The average number of leaves was 4.5 for all substrates. For the analysis of vine branches rooting, first the descriptive tests of the different levels of rooting were performed for each of the substrates. Subsequently, the normality tests (Kolgomorov-Smirnov $p < 0.05$) and homocedasticity (Levene test $p < 0.05$) were performed, resulting in none of the assumptions being fulfilled, so a Kruskal-Wallis was performed for each of the two variables (sprouted and rooted) at the second week, resulting that the differences were not significant ($p > 0.1$) in relation to the substrates used. The relevance of the passage of time ($p < 0.05$) was confirmed by a Cochran Q test that resulted in $p < 0.05$; and a Wilcoxon test $p<0.05$ in relation to number of roots and shoots. In conclusion, it should be noted that although better performance of the vine branches, was observed in the 2-perlite substrate, the differences were not statistically significant. The first stage of mass production of vine branches takes in nursery has been completed. It has been proven that the substrate used is indistinct for the mass production of rooted and sprouted vine branches.

212. ANALYSIS OF PATHOGENICITY, FUNGICIDE RESISTANCE AND PATULIN PRODUCTION IN STRAINS OF BLUE ROT PRODUCER *Penicillium* sp

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The blue rot produced by *Penicillium expansum* is a post-harvest disease that causes significant economic losses in fruits and vegetables. The application of fungicides is the main way to combat this disease. However, there are strains resistant to them and added to this, public demand for reducing the use of pesticides has grown. On the other hand this fungus is a producer of patulin. This compound is a mycotoxin that causes acute and chronic diseases. The goal of this work was to analyze *Penicillium* sp strains in terms of their ability to produce blue rot in apples, resistance to fungicides and patulin production. In addition to select the best candidates for future studies using different control methods. We worked with 10 strains of *Penicillium sp* isolated of pear and apple rot from Alto Valle de Río Negro, 1 isolated from San Luis and 2 from references. The pathogenicity tests were performed on commercial *Red delicious* apples washed and then wounded to inoculate them with 20 □L of a suspension of 10^6 conidia/mL. Apples were stored 7 days at 25°C and the diameter of the rots was measured (mm). The fungicide resistance at the doses recommended for standard postharvest treatments was evaluated "in vitro". A suspension of spores of the fungus was dispersed in plates with PDA. Then, holes were made, and there were inoculated with 5 fungicides Captan, Tecto (Thiabendazole), Carbendazim, Scholar (Fludioxonil), Penbotec (Pirymethanil) or water. Development or not of fungus was observed at 3 and 7 days of incubation at 25°C. Patulin determinations were performed by culturing the strains in PDA medium 7 days at 25°C. Then, the toxin was extracted and determined in HPLC-UV according to the modified AOAC technique. Regarding pathogenicity, INTA-1, INTA-2, INTA-6, INTA-10 strains developed rot diameters between 39-36 mm. On the other hand, the rest of the strains presented diameters smaller than 33mm. All the strains tested were resistant to Captan fungicide. Also, INTA-6 and INTA-10 strains showed total resistance to Tecto and Carbendazim and partial resistance to Penbotec and Scholar. On the other hand, the strain isolated in San Luis presented total resistance to Tecto, Carbendazim, Penbotec, and Captan. INTA-10 strain presented the highest production of patulin of 119.78µg/g PDA. However, the rest of the strains presented production below 45 µg/g PDA. From the results obtained, it is observed that all strains showed resistance at least one fungicide, several strain to 2 or 3 of them. The longer the fungicide was present, the greater resistance was observed. Strains also presented different capacities to generate blue rot in apples and to produce patulin. In addition, it was concluded that the INTA-10 strain is the best candidate to continue studying different control methods. It is highly pathogenic, resistant to fungicides and has the highest production of patulin.

213. *IN VITRO* INHIBITION OF *Phytophthora capsici, Fusarium oxisporum* AND *Verticillium dalhiae* BY NATIVE PLANT GROWTH PROMOTION RHIZOBACTERIA STRAINS FROM MENDOZA

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Rapid growth of the human population and their need of food has impulse to extensive use of chemical fertilizers and pesticides to increase yield crop. These practices are costs and increase environmental pollution. In the last years, appear needs for novel agricultural practices that do not harm natural ecosystems. Different plant growth promotion Rhizobacteria (PGPR) have been studied and

incorporated into agricultural practices and biocontrol has emerged in recent years as an alternative to pesticides. PGPR antagonize or prevent the effects of phytopathogens or deleterious microorganisms. PGPR produce substances that protect them against various diseases. Metabolites include hydrogen cyanide and antibiotics. Some strain PGPRs produce lytic enzymes as β-1,3-glucanase, chitinase, protease and cellulase that degrade the cell wall of fungi and produce a direct inhibitory effect on the growth of hyphae. Another important mechanism of biocontrol of PGPRs is related to the production of siderophores that chelate iron, making it unavailable to pathogens. In this study four native PGPR strains of Mendoza against pathogenic fungi of pepper crops were evaluated. The test was carried out by fourfold and repeated two times using independent Petri dishes for the growth of each bacterial strain and each pathogens. On Luria Broth (LB) and potato dextrose agar (PDA) plates, one disc of a 5 mm plug carrying mycelia fungi (*P. capsici*, *F. oxisporum or V. dalhiae*) previously grown for 3 days in PDA was placed and each individual bacterium (60I1, 53F, 64S1, 42P4) was plated as line. Bacterial strains were cultivated in LB medium for 24 h at 30 °C with orbital shaking (120 rpm). The bacterial cultures were adjusted to a final concentration of 10^8 cells mL^{-1}. The assay was performed incubated at 30 °C for 7 days. The mycelium growth was digitally determined every day. A control plate was included growing with the fungi. The percentage of inhibition was calculated comparing to the control. The strains 53F, 64S1 y 42P4 inhibited *F. oxisporum* and *V. dalhiae in vitro* mycelium growth. The 42P4 strain inhibited the *P. capsici* growth in APG plates. Also, we observed the production pyoverdine by 42P4 strain under UV in APG medium.

214. PRELIMINARY STUDIES OF PHENOLOGY OF DURAZNERO *(Prunus persica L.)*.

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Fruit development should be based on knowledge of certain agroclimatic factors. Performance and quality are genetically determined, but strongly influenced by climatic factors, such as frost. Knowing the phenology of the different varieties for fresh consumption and for industry, in regions not typically producing fruit, will help to make an adequate choice of varieties, optimizing productive resources. In the province of San Luis there are four zones with different edafoclimatic characteristics, which determine the productive potential of a particular variety, being favorable for one of the four zones and in others it will be harmed. The work done in 2016-2017 and 2017-2018 seasons in 6 peach varieties: Spring crest, Flavor crest, Maria bianca, Carson, Andros and Bowen, in Sol Puntano San Luis experimental property. To carry out this study, we worked with a plot of experimental - productive varieties of one hectare; were the phenological states were evaluated according to Baggiolini. The evaluations were carried out every 3 three days for 5 months from the beginning of vegetative activity until harvest (July - November). Frosts were recorded for each date, correlating these with the phenological events to determine their incidence in the different varieties. The meteorological data were taken from the Weather Station Network (REM) recording the temperatures and rainfall. Phenological states were recorded by variety and climatic conditions by date. The peach phenology begins in mid-July, the occurrence of frost is not critical until mid-August, because it is observed in yolk states: winter and swollen. The early varieties: Spring crest, Flavor crest and Maria bianca are in full bloom status (F) in the first half of September, more precisely September 12 as the average date; while late varieties (Carson, Andros and Bowen) are in full bloom status (F) in the second half of September, more precisely on September 21 as the average date. During the period 25/8 to - 25/9 the occurrence of critical damage temperatures, was recorded, requires active defense to ensure satisfactory set. The deviation in the early varieties was (+/-) 7 days with respect to the average and the late varieties (+/-) 10 days in relation to the average. The late flowering varieties: Carson, Andros and Bowen have development possibilities, are not affected by critical temperatures of flowering damage. Early flowering cultivars are more susceptible to the occurrence of frost, they concentrate flowering in the indicated critical period, while late cultivars do so outside the critical period, guaranteeing a lower probability of loss of fruits. Productivity in these conditions requires to implement a system of defense against frost and protection with anti hail mesh. These results can help with the development of alternative or complementary strategies to improve the ecological, economic and social sustainability of the fruit systems of the central west of the province of San Luis.

215. EFFECT OF DIFFERENT OSMOTIC POTENTIALS WITH POLYETHYLENGLYCOL ON THE GERMINATION OF *Tetrachne dregei* NEES

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Tetrachne dregei Nees (tetrachne “green grass”), is a herbaceous forage species belonging to the family of the Poaceae. It is native to South Africa and Pakistan. It is a species with good forage quality for livestock considered provisional for the semi-arid temperate region in EEA-INTA San Luis. There are 40 years plots who survived winter with frost of -17°C. The difficulty to achieve its implantations is a limitation for the implantation of the extensive cultivation of this species. The purpose of this paper is to investigate the effect of different osmotic potentials regulated by different concentrations of polyethyleneglycol 6000 on the germination of seeds. The seed was collected from 10-years-old plots, previously fertilized with 100 kg/ha with 46% urea. Four treatments were performed 1-0.0 Mpa-control (distilled water), 2-0.5 Mpa, 3-1Mpa,4-1.5 Mpa with three repetitions each, 20 seeds were used for box so 60 seeds were counted for treatment. Germination energy was calculated at three days and germination power at seven days. Germination conditions were as follows: 30°C (8 hours’ light) and 20 °C (16 hours’ dark).The following results were obtained : control (with water) was obtained from EG 16% and the PG of 73% , in treatment 1 (0.5Mpa) the EG gave 0% the PG 3% the rest of the treatments was negative. It was concluded that *Tetrachne dregei* Nees germinanted without difficulty in control conditions al 0.0 Mpa of osmotic potential and present strong sensitivity to osmotic stress as opposed to tolerance to saline stress present by the species, according to our previous studies.