

SLVRC Plant Pathology Newsletter

June 2019

Mark Your Calendars for the following events ...

June 11, 2019:

A PVY workshop will be organized at the San Luis Valley Research Center by the Colorado Potato Certification Service focusing on negative impacts and management of PVY. Guest speakers include Dr. Stewart Gray (Cornell University), Dr. Russel Groves (University of Wisconsin-Madison), Dr. Nina Zidack (Montana State University) and Dr. Amy Charkowski (Colorado State University). The event will be held from 7:15 am to 3:00 pm. Breakfast and lunch will be provided.

June 19, 2019:

An annual field day will be held at the San Luis Valley Research Center from 7:45 am until 1 pm. Lunch will be provided.

More updates about these events can be found here: <http://potatoes.colostate.edu>

Disease Management Updates

- Seed potatoes planted in mid-April at the San Luis Valley Research Station have sprouted and are about to emerge from the soil (Fig. 1)



Figure 1: Sprout development from a potato seed tuber planted on 4/15/2019. Image taken on 5/20/2019.

- As the season progresses, growers should consider thinking about management of foliar diseases such as early blight and white mold affecting leaf, stem health and tuber yields.
- Early blight mainly affects older plant tissues or plants subjected to nutrient or weather stress. White mold is more prevalent in fields with dense canopies and high rates of Nitrogen fertilization.
- Airborne movement of pathogen spores play an important role in the spread of these foliar diseases. Alternating wet and dry periods (created by center pivot irrigation) increase the likelihood of foliar disease development.
- Several fungicides with active ingredients such as azoxystrobin, difenoconazole, chlorothalonil, fluopyram, pyrimethanil, boscalid and many others are available in the market for management of foliar diseases. However, timing of application determines the effectiveness of a fungicide program.
- A degree-day model was developed in 1980s

for predicting environmental conditions favorable for early blight development in the San Luis Valley. As per this model, fungicide applications should be initiated for early blight management at 650 degree-days (DD). The current accumulated degree-days based on different planting dates are shown in Table 1. It is to be noted that the 650DD model was developed based on plant maturity and has not considered the biology of the pathogen.

- The plant pathology program at the SLVRC in collaboration with Dr. James Woodhall (University of Idaho) and funding support from Colorado Potato Administrative Committee (CPAC) has started sampling airborne pathogen spores (Fig. 2) and monitoring weather parameters. The overarching goal with this project is to provide potato growers in the San Luis Valley with information related to disease risk based on weather data and spore dispersal patterns so they can better time fungicide applications. Stay tuned for more research updates from the plant pathology lab...



Figure 2: Burkard multi-vial cyclone sampler was set up in mid-May at the San Luis Valley Research Center to monitor potato foliar pathogen spore dispersal patterns.



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Figure 1: Early Blight Degree-Day calendar. Use planting date and the weather station located nearest to your field to estimate Early Blight Degree-Days accumulated as on 5/30/2019. A 650 degree-day threshold is needed to time initial fungicide application for early blight management.

(Weather data source: <https://coagmet.colostate.edu>)

[Location of weather stations: **Center-1:** Lat: 37.7067 Lon: -106.1440 ; **Center-2:** Lat: 37.8288 Lon: -106.0380 ; **La Jara:** Lat: 37.2443 Lon: -105.9722 ; **San Acacio:** Lat: 37.1417 Lon: -105.6110]

Daily Early Blight Degree-Day updates can be found at: <http://potatoes.colostate.edu/programs/potato-pathology/et-degree-day-reports/>

Planting Date	4/15/2019	4/16/2019	4/17/2019	4/18/2019	4/19/2019	4/20/2019	
Center-1	158.8	158.8	157.4	155.5	153.1	145.25	
Center-2	135	135	135	134.45	130.65	127	
La Jara	107.41	104.96	104.96	104.96	104.96	103.91	
San Acacio	128.45	125.05	123.55	123.55	123.55	122.3	
Planting Date	4/21/2019	4/22/2019	4/23/2019	4/24/2019	4/25/2019	4/26/2019	4/27/2019
Center-1	139.25	137.85	135.8	135.8	131.9	123.8	117.2
Center-2	123.35	121.7	121.15	121.15	117	108.05	102.7
La Jara	98.76	98.76	96.06	96.06	94.26	89.51	82.11
San Acacio	117.6	115.65	110.8	110.8	108.1	103.95	97.1
Planting Date	4/28/2019	4/29/2019	4/30/2019	5/1/2019	5/2/2019	5/3/2019	5/4/2019
Center-1	109.6	99.25	95.35	95.35	95.35	94.1	93.55
Center-2	94.9	86.6	82.7	81.45	81.45	80.4	79.65
La Jara	79.06	73.81	72.16	71.26	70.86	70.86	70.86
San Acacio	94.15	87.1	83.1	83.1	82.15	82.15	82.15
Planting Date	5/5/2019	5/6/2019	5/7/2019	5/8/2019	5/9/2019	5/10/2019	5/11/2019
Center-1	88.6	83.3	76.7	68.3	68.2	68.2	68.2
Center-2	77.6	75.9	70.55	61.1	60	60	60
La Jara	70.36	67.91	64.11	57.86	57.86	57.86	57.86
San Acacio	81.15	79.05	73.65	68.5	67.85	67.85	67.85
Planting Date	5/12/2019	5/13/2019	5/14/2019	5/15/2019	5/16/2019	5/17/2019	5/18/2019
Center-1	65.55	60.85	53.25	43.4	31.4	18.3	16.65
Center-2	57.75	54.5	47.45	39.4	28.15	16.95	15.4
La Jara	56.31	53.91	47.61	39.1	29.45	16.25	14.95
San Acacio	66	63.5	56.2	47.1	36.6	24.7	21.5
Planting Date	5/19/2019	5/20/2019	5/21/2019	5/22/2019	5/23/2019	5/24/2019	5/25/2019
Center-1	16.65	16.65	16.65	16.65	16.65	12.7	12.7
Center-2	15.4	15.4	14.8	14.8	14.8	11	11
La Jara	14.95	14.95	14.95	14.95	14.95	13.7	13.7
San Acacio	21.5	21.5	21.5	21.5	20.5	15.8	15.8

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Additional Resources: <http://potatoes.colostate.edu>