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AG Talk Report

UNIVERSITY OF IDAHO, U.S. DEPARTMENT OF AGRICULTURE, AND IDAHO COUNTIES COOPERATING

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AN AQUIFER RECHARGE PROGRAM

VOLUNTEER POTATO RISK

Ag Talk Tuesday 2021 is "live"

Organizers: Kasia Duellman, Pamela J.S. Hutchinson, Juliet Marshall, University of Idaho

Mark your 2021 calendar for Ag Talk Tuesday, the first and third Tuesday May through August at 11:00 AM (MDT)! We kicked off the 2021 Ag Talk Tuesday sessions on May 4th. *As in past years, these live sessions begin with round-table crop updates provided by University of Idaho Extension personnel and other ag professionals who attend*. We encourage you to chime in with your observations of the current season, questions, and possible solutions. After the roundtable and audience input, guest speakers present on Featured Topics – look at the calendar to see what is on the agenda for the next Ag Talk Tuesday. The live sessions are recorded, and the link is provided first to those who register (links will be made available to the general public at a later date).

Ag Talk Tuesday started in 2018 with face-to-face meetings. In 2019, we offered a hybrid version, where people could attend in-person or online. As you know, in 2020, we could not meet in-person, so on-line delivery was the only format. We have been very pleased that this change resulted in expanded rather than reduced participation. In fact, the 2020 Ag Talk Tuesday registrants hailed from not just Idaho but also Washington, Oregon, Montana, and North Dakota.

Now it's 2021 and we are keeping the LIVE online format. Once again, registrants from many crop production regions attend. We have been told that nothing beats participating in these sessions LIVE online. Why? Because even though we are not physically face-to-face, the format allows interaction with fellow ag professionals in "real time" to provide additional insight and information regarding current season crop pests, diseases, and other crop issues, and to engage with the guest presenters who go more in depth on featured ag-related topics. For more information, please check out our website: https://www.uidaho.edu/extension/news/ag-talk-tuesday

Ag Talk Tuesday Schedule for 2021 - First and Third Tuesdays, May through August, 11:00 AM

Date	Featured topics (short titles)
May 4	-Economic injury level for thrips in alfalfa -Cereal Disease Update
May 18	-Idaho Insect ID website -Aquifer recharge program
June 1	-Farm Stress Management
June 15	-PVP and Title V -Post-emergence herbicides in potatoes
July 6	-Barn Owl Boxes -Weed research at the Kimberly REC
July 20	-Federal Crop Insurance 101 -Field projects of cropping systems in eastern Idaho
August 3	-Economics -Water and Nutrient Management Update
August 17	-Seed potato germplasm update -Fungicide resistance management and potato dry rot

University of Idaho Extension

University of Idaho Field Days are Happening this summer!

University of Idaho Field Days are back! All times below are in Mountain Time.

Thinning and Pruning Field Days	June 18: 10am-6pm Location: Elks Lodge, 628 Main Avenue, St. Maries, ID June 24: 9:30am-5:30pm Location: Meet at Latah Co. Fairgrounds 1021 Harold Ave. Moscow ID 83843
Cereals Field Days	June 29—Rockland; July 20—Idaho Falls; July 21-Aberdeen; July 22-Ashton and Soda Springs (see website below for details)
Snake River Weed Management Tours	July 8: 9am-Noon (Registration: 8:30am) Location: Aberdeen Research & Extension Center, 1693 S 2700 W, Aberdeen, ID

For details and more information, please visit the UI Field Days website: https://www.uidaho.edu/extension/news/field-day

The Idaho Insect Identification Website

By Jason Thomas and Brad Stokes, UI Extension Educators

As the only extension educators in the state with a degree in Entomology Brad Stokes and Jason Thomas have been identifying insects for the public since they began their careers at the University of Idaho. Through a collaborative effort they decided to create a central website with the purpose of 1) funneling all requests, 2) compiling statewide data and 3)make the identification process faster and more efficient. Thus, in early 2020, the Idaho Insect Identification website was launched. The website hosts a variety of educational materials about insect collection techniques, equipment, preservation and integrated pest management. The focus of the site is a submission form that allows users to submit images of insects they would like identified. Additional questions were added to assist with identification and learn more about public perceptions. Once someone fills out a request emails are immediately sent to Brad and Jason who discuss the request, come to a consensus and prepare information and materials to send to the person requesting the information. The site has improved our efficiency and we have processed over 100 requests since launch. The data also has given us information about the perceptions of the public in regards to insects and other arthropods. Those requesting identification believed that 71% of the specimens in question were pests and that 29% were not pests. After reviewing these requests and identifying the specimens it was found that only 3% were significant pests, 22% were tolerable or potential pests, 19% were beneficial and 56% were not pests. Of the responses so far 41 individuals indicated that without further ID they would apply pesticides, but according to the entomologists' review, only 8 of these could actually benefit from a pesticide treatment. The website continues to be a good resource for Idahoans and is available year-round at https://www.uidaho.edu/extension/insect-id.

A Water Recharge Program with ESPAR

By Keith Esplin, Executive Director, Eastern Snake Plain Aquifer Recharge (ESPAR)

What is ESPAR? (ESPAR)

ESPAR is the acronym for **Eastern Snake Plain Aquifer Recharge, Inc.**, a non-profit company, organized under the same statutes as canal companies, which provides Incentivized Managed Aquifer Recharge (IMAR) for its member owners. Members include farmers, ground water districts, municipalities, developers, and property owners with good recharge sites.

Water Storage Background

The 1902 Federal Reclamation Act promoted the rapid expansion of water storage projects across the West. Under this act private entities would promote specific projects and lobby Congress for construction loans. Once authorized, water users would contract with the Bureau of Reclamation (BOR) to design and build the project. The water users then repaid their portion of the project construction over many years. The BOR continued to maintain and operate most projects; charging a fee to water owners to do so.

Above. A diversion installed on the Teton River to divert water into a recharge pond.

The first project built on the Upper Snake was in Jackson, Wyoming. Here the water users built a dam on the outlet of an existing lake to raise the lake level for irrigation storage. The first dam was built in 1906, with additions and rebuilds in 1910 and 1911 reaching its current capacity of 847,000-acre feet.

The distribution of natural flow and storage water resulted in the establishment of the "Surface Water Distribution Rules" which govern water distribution today throughout eastern and southern Idaho.

Developments in the Second Half of the Twentieth Century

By the 1940s farmers discovered that they could put wells in the massive Eastern Snake Plain Aquifer (ESPA) to irrigate additional lands that didn't have access to water from the Snake River. For a time, between wells, natural flow, and surface storage it appeared that Idaho had plenty of water for anyone wanting it. However, towards the end of the 20th century it became apparent that even Idaho's supplies were limited.

Development of inefficient flood irrigation during the first half of the century added massive amounts of water to the ESPA through what is called "incidental recharge." During this time period, a huge trout growing industry developed using the increased spring flows back to the Snake River in the Thousand Springs area of the Magic Valley.

Then in the second half of the 20th century the aquifer began to decline almost as rapidly as it had risen over the previous 50 years. This was due to increased irrigation efficiency with sprinklers, which lowered the amount of incidental recharge into the aquifer. Other factors were the irrigation of close to one million acres from deep wells and extended periods of drought or possibly climate change.

Declining spring levels started a many years' process of trout farms and Magic Valley canals filing "water calls" under which they claimed the junior groundwater pumpers in the ESPA were taking their "senior" water rights and causing them injury.

During this same time period Idaho Power discovered that not all of its hydropower rights had been subordinated – or put in second position – to irrigation rights. The legislature at this time failed to back the irrigators, and Idaho Power was guaranteed minimum flows at the Murphy gage, which is supplied largely by spring flows into the river, primarily at Thousand Springs.

More Storage Needed

Like most river basins, the amount of precipitation, including winter snow, varies widely from year to year across the Upper Snake River Basin. On average, surface water natural streamflow is short in about half the years requiring storage from previous water years. In other years, surplus water flows past the last dam in the system, Milner, where it goes undiverted out of the system. Often this surplus water is a massive volume. On average it is 1.9-million-acre feet, or more than enough water to fill American Falls Reservoir.

Above. A recharge pond. Photo credit: K.

The early 20th century response would have been to build more reservoirs to capture the water. However, with failure of the Teton Dam, increased environmental awareness, and a lack of good storage sites, that option is increasingly unlikely and also very expensive.

Still the need for more storage to capture the excess water that flows in half the years past Milner becomes more and more acute to meet demands by irrigators, cities, Idaho Power, and a rapidly growing population.

In 2015 an agreement was signed between groundwater users and the Surface Water Coalition (SWC) of the Magic Valley which had been filing "water calls" against the groundwater users. This settlement agreed to a reduction of some 240,000 acre-feet per year in groundwater pumping by irrigators. Later the cities also agreed to a reduction. In both cases the required reduction can be mitigated by replacing the pumping reduction with Managed Aquifer Recharge (MAR). At the same time, the State of Idaho agreed to conduct a MAR program with an average of 250,000 ac. ft of recharge with the intent of restoring the aquifer and preventing Thousand Springs flows from declining below required amounts for Idaho Power.

Since new surface water storage is unlikely and expensive the best alternative for storing water in the ESPA is through MAR activities to use excess water when it is available. Over the past five years both state and private recharge programs have expanded rapidly and added hundreds of thousands of acre-feet to the aquifer annually. Still, much opportunity remains to be able to capture more of the run-off water when it is available, store it in the aquifer for shorter supply years, and restore the long-term balance in the aquifer.

Where Is the Water?

People tend to think in terms of what they can see. So, it may not be too big of a surprise to learn that 97 percent of the world's water is in the oceans or that another 2.25 percent is in the form of ice and snow, leaving only about 6/10 of one percent of the world's water as fluid fresh water. What may be a bigger surprise is that of this 0.6 percent ninety-seven percent is in groundwater, leaving only 3% in rivers and lakes. The same is true for the Upper Snake River Basin. We have much more water underground and much more opportunity to store it there than we do on the surface.

The ESPA can be compared to a large bathtub. The "faucet" or incoming water comes from incidental recharge, direct precipitation, and the region's rivers and streams. The over-flow from the aquifer is primarily the springs above American Falls and at Thousand Springs in the Hagerman Valley. The only other way water leaves the system is by flowing unused past Milner Dam. The more of that water that can be captured during spring run-off the more that is available for use or for flows from the springs to again fill American Falls or re-supply the river below Twin Falls.

The ESPAR Storage System

Eastern Snake Plain Aquifer Recharge, Inc. (ESPAR), along with Recharge Development Corporation (RDC™), have developed a process to fund the development of recharge projects and account for water that is recharged via a concept termed Incentivized Managed Aquifer Recharge (IMAR). The basis of the system is called an Aquifer Recharge Unit or ARU™, which is the amount of virtual space in the aquifer that would store one acre-foot of water. So now, just as farmers built a dam on the Jackson Lake outlet to raise the level of the lake for storage, ESPAR can sell ARUs to raise money to add water to the top of the aquifer for storage and use.

The basis for running this new storage system uses all of the surface water management principles that have been developed over more than 130 years of surface water management.

ARUs are a virtual vehicle for defining appropriated water storage in a virtually defined reservoir. ARUs were invented to provide ownership of storage below land surface. The outcome of moving surface water into storage below the surface of the ground is it provides a "mitigation" vehicle that can actually be administered by the Watermaster.

Thus, when groundwater rights must be cut or reduced, ARUs supply a source of water that can allow the necessary pumping to continue, which protects the economic interests of the individual as well as the economy of the entire region.

It is the sale of ARUs that provides funds for developing IMAR, or incentivized managed aquifer recharge projects. There is an additional fee to maintain and operate the system as well as to pay for the actual water which is recharged. All of these charges cost far less than what it would take to build and operate additional surface storage reservoirs.

If you would like to learn more about the ESPAR Incentivized Managed Aquifer System, or are interested in increasing the reliability of your water supply, please contact me for more information.

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Overwinter survival of late blight in Idaho in volunteer and cull potatoes

Phillip S. Wharton, Alan Malek and Katie Malek

Volunteer potatoes

With the recent annual epidemics of late blight late in the 2013, 2014, 2015, 2018 and 2019 growing seasons there has been speculation as to the source of these outbreaks and debate as to the relative importance of overwintering sources of inoculum. *Phytophthora infestans*, the causal agent of late blight overwinters in potato tubers that are intended for planting as seed, but the pathogen may also be harbored in waste or cull potatoes, or in late blight-infected volunteer potatoes left behind in the field during harvest the previous season.

Volunteer potatoes have become an important perennial weed in many potato growing regions. Researchers in Washington have reported that up to 1,122,000 tubers per acre are returned to the soil after harvest. Potato sprouts emerge from overwintered tubers and grow rapidly in the spring. This rapid growth combined with the tubers ability to re-sprout makes them very difficult to control, even with multiple control measures. Studies with field corn (Zea mays) showed that when volunteer potatoes were not controlled corn yields were reduced up to 62%. Volunteer potatoes also act as hosts for a number of important pests and diseases, including late blight, Colorado potato beetle, potato leafroll virus, and nematodes such as *Paratrichodorus allius* (the nematode that transmits tobacco rattle virus, the causal agent of corky ringspot disease).

Potato tubers are susceptible to cold injury and in the past tubers left in the soil after harvest would be killed by the freezing soil temperatures of the Idaho winters. Tuber death resulting from cold injury is usually as a result of the freezing of intracellular water in the tuber tissue. However, tuber tissue is able to supercool below its freezing point without causing cell death and when the tubers are re-warmed, they will still be viable. The formation and growth of ice crystals within a supercooled liquid must be preceded by a process known as nucleation. As with most plant tissues, potato tuber tissues can supercool several degrees due to a lack of nucleating substances necessary for ice crystal initiation or barriers to ice crystal growth present in the tissue. Previous research has determined that the freezing point of potato tuber tissue is between 30 and 28°F, but under controlled conditions where ice crystal nucleation is prevented, tubers are able to supercool to 20°F. In the soil, tubers are in contact with organic matter, water, microbes and minerals that may act as ice crystal nucleation sites and thus may affect the amount of supercooling that a tuber undergoes. Field trials carried out in Washington state showed that when soil temperatures at tuber depth reached 27°F or lower, extensive tuber death occurred.

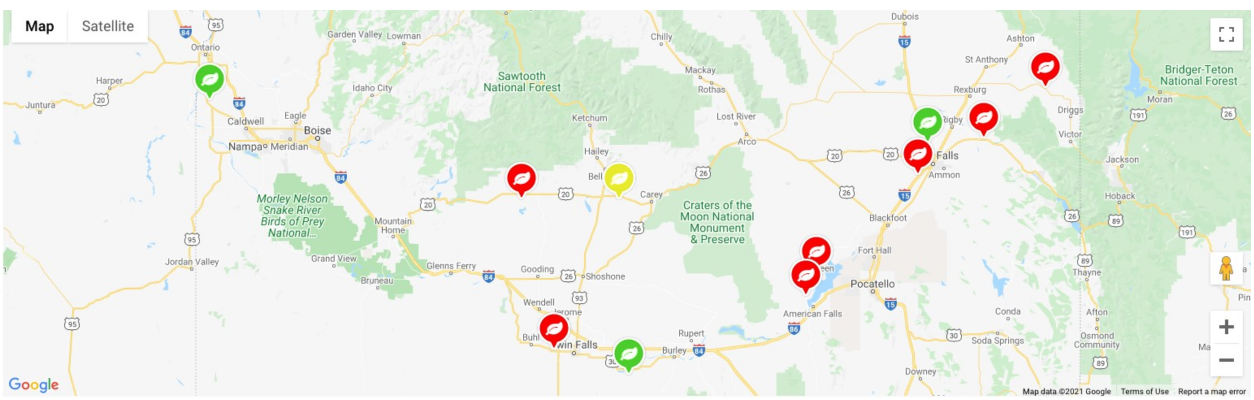
Many interacting variables including meteorological factors such as climatic change and increasing tolerance of *P. infestans* to colder temperatures represent a serious situation for the potato industry in the Pacific Northwest (PNW). Winters in Idaho and the PNW are also becoming warmer which may favor survival of volunteer potatoes and cull potatoes over winter. With the recent trend for warmer winters, more volunteers and cull pile potatoes are surviving the winter and acting as sources of disease inoculum in the spring. Studies have shown that mycelia of newer genotypes of *P. infestans* (e.g., US-8 and US-23) are becoming more tolerant to colder temperatures and are tolerant to 27°F for up to three days continuous exposure. Our studies have shown that the tubers of most cultivars appear to breakdown after exposure to 27°F for about one day. Thus, the monitoring of winter soil temperatures may enable growers to accurately estimate the potential for survival of volunteer plants over winter and thus the help to estimate the risk of an epidemic of late blight initiated from volunteer potatoes or cull piles. We have developed a model that predicts the likelihood of tuber survival over the winter based on soil temperatures at 2 and 4 inches between November 1st and March 31st (www.cropalerts.org/volunteer-survival/)

- If tubers were exposed to temperatures below 27°F for more than 120 h between 1 November through 31 March at 4- and 2-inch depth, then the risk of tuber survival is considered low (indicated by a green marker pin).
- If tubers were exposed to temperatures below 27°F for less than 120 h at 4-inch depth and greater than 120 h at 2-inch depth, then there was a moderate risk of tuber survival (indicated by a yellow marker pin).

If tubers were exposed to temperatures below 27 °F for less than 120 h at 4-inch depth and less than 120 h at 2-inch depth, then there was a high risk of tuber survival (indicated by an orange marker pin)."

The data for this model is collected automatically from automated weather stations in the the Agrimet weather network (http://www.usbr.gov/pn/agrimet/index.html) and University of Idaho run weather stations (https://cropalerts.org/risk-monitoring/). After the model is run, data is posted on a Google map with colored markers indicating the locations of the weather stations (Fig. 1). When users click on the markers, they will be given further data on soil temperatures for that station.

Figure 1. Volunteer survival map showing the weather stations used to collect soil temperature data for the volunteer survival model. The marker color indicates the risk of volunteer survival (red = high risk; yellow = moderate; green = low).



This winter in Idaho most areas in the Snake River Valley experienced soil thermal conditions that placed them in the high-risk category for volunteer survival. Even with the severe sub-zero air temperatures we had only three of the locations where the model was run this winter (2020/2021) had minimum monthly soil temperatures below 27 °F (Table 1). This situation should alert growers to the high risk of potato volunteers surviving the winter and all growers should therefore be implementing their IPM scouting programs early in 2021 and considering volunteer elimination programs in adjacent non-potato crops if possible. Growers in Southeast Idaho counties (Bingham, Bonnerville, Madison, Power Co.) where there have been previous late blight outbreak and where conditions were conducive for over winter survival should remain vigilant for signs of late blight on volunteer potatoes.

Table 1. Minimum monthly soil temperatures (°F) at 4 inches below the soil surface for winter 2020/2021 at select locations.

Month	Location									
	American Falls	Tetonia	Aber-deen	Gold-en Valley	Ririe	Twin Falls	Picabo	Fairfield	Par-ma	Osgood
November	30	31	35	27	33	38	31	33	28	24
December	25	30	32	22	29	34	27	28	26	18
January	26	31	32	27	26	35	29	32	26	22
February	29	32	32	30	29	36	31	34	26	24
March	32	32	33	30	30	36	30	34	27	25

Cull Potatoes

As mentioned above, late blight can also survive the winter in cull potatoes. Cull potatoes are those potatoes unusable for the fresh market, processing, or dehydration because they don't meet minimum size, grade, or quality standards, or potatoes disposed of for some other reason such as overproduction or waste (slivers) from seed production.

It is difficult to estimate the probability that late blight infected potato stems or foliage will emerge from culled potato tubers. Several factors can influence the fate of the infected tuber. If the infection is severe, then the tuber may rot and prevent sprout development. The tuber infection however may be localized and optimal in terms of inoculum load and therefore it is possible that a developing sprout or the tuber itself could become infected to initiate an epidemic. Under optimal environmental conditions (cool, wet, weather) the disease can then spread within individual plants, between plants and neighboring crops. Research has shown that the temperature within discarded cull piles may influence core tuber tissue temperatures affecting the survival of tuber tissue and thus *P. infestans* mycelia in infected tubers. Consequently, the risk of initiation of an epidemic of late blight from cull piles is closely related to the temperature experience of overwintered potato culls. Although the potatoes at the top and bottom of a cull pile may freeze over the winter when ambient air temperatures fall below freezing, research has shown that the temperature in the middle of the pile remained stable regardless of cull pile size (1-15 ton). Since cull piles in excess of 1 ton may enhance the survival of tubers and thus the P. *infestans* mycelia even in the coldest winters it is important to follow cull and waste potato management guidelines.

Cull and Waste Potato Management Options

Potato production and processing operations may accumulate cull piles at any time during the year, but several periods are especially critical. In the spring during cutting and planting, potato waste material may accumulate as seed pieces or tubers are discarded due to size or disease problems. At harvest, potatoes that do not make the grade due to size, disease, or defects are sorted out and discarded prior to placement of the crop in storage. Disposal of cull potatoes discarded from storage or from in-coming seed lots during the spring pose a challenge for the industry. Depending on the timing of disposal, there is a real chance that these culls will not be thoroughly frozen to prevent new growth. Therefore, potatoes which are discarded during the winter and spring as culls should be disposed of in a way that will ensure they do not sprout and grow to provide unprotected foliage which could be a source of late blight to threaten the new season's crop. The method of disposal will generally depend on the individual situation (location, amount of potatoes, etc.) as well as the time of year. Disposal of potatoes in the winter months when waste potatoes can be reliably expected to freeze can greatly simplify the process, while disposal in the warmer months can greatly add to the challenge of proper disposal.

Disposal of cull potatoes by spreading them on fields that will not be used for potato production is a very good option for cull potato management. However, its important to avoid fields that will be planted with potatoes in the following season as cull potatoes can introduce nematodes, weed seeds and other soilborne diseases to the field. Once applied to the field every effort to crush, cut and destroy the tubers should be attempted. These methods include running heavy machinery over the tubers or a cutting tool that does not bury the tubers. Crushing and chopping cull potatoes into smaller pieces makes the tuber tissue more susceptible to rot and desiccation, which is desirable. Weather conditions during the winter will also lead to desiccation of tubers, which will make spring field tillage easier. Avoid tilling until cull potatoes have had substantial time to freeze and desiccate. Premature tilling could bury live tubers deep enough in the soil to insulate them from further exposure to killing temperatures allowing them to survive the winter as volunteer potatoes.

It is extremely important not to pile waste potatoes too high during field disposal. As described above, this practice will often serve merely to insulate the potatoes underneath from freezing. Spread cull potatoes on top of the soil surface no more than two potato layers deep (approximately 6 inches). If spreading tubers is not an option and the amount is small e.g. up to 1000 cwt, growers may opt to dispose of tubers by piling them into **temporary** cull piles. Culls should be piled close to areas where they can be closely monitored to insure that there will be no unprotected sprouting and foliar growth. These culls should be covered with black plastic sheets to increase the temperature of the respiring tubers and accelerate the rate of breakdown. Whenever cull potatoes are discarded the area should be periodically monitored to assure that any unprotected foliage does not occur. The pile should also not be near areas where the public congregate or reside, surface water or wetlands as concerns about any nuisance odors or leachate could arise. The additional issue with a cull pile is that the volume of potatoes is concentrated so the concern for nitrogen leaching is significant.

Cull potatoes are a significant fertilizer source that needs to be accounted for when calculating the fertility requirements of the crop following cull potato application. Fields that will be planted with grain or forage are particularly good candidates for using cull potatoes as a partial fertilizer source.

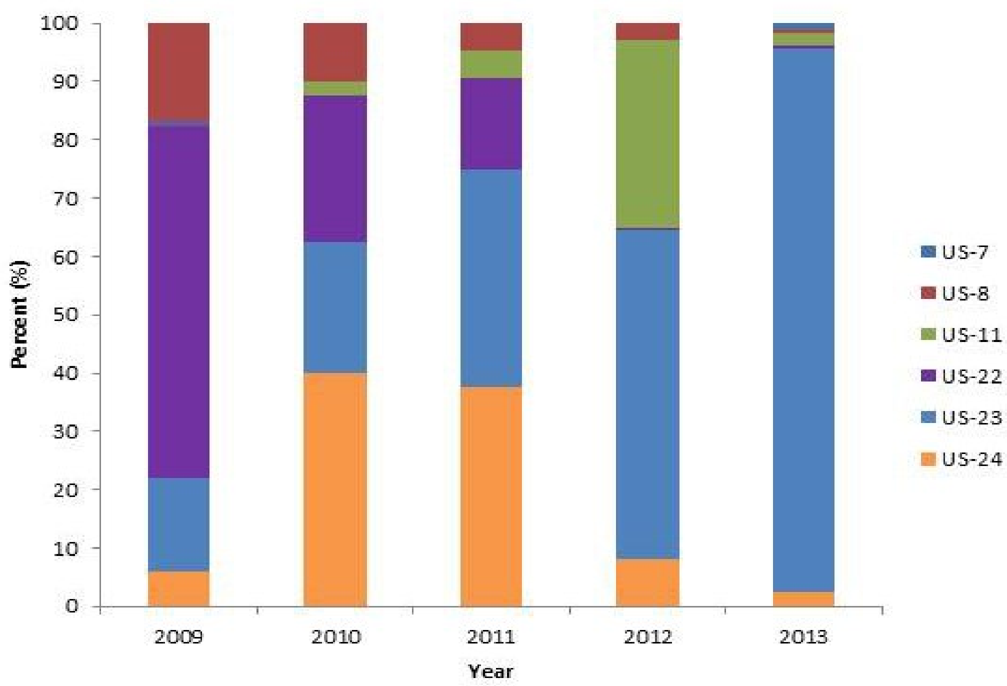
Other options for cull potato management in the warmer months of the year include burial, composting, and livestock feed. For further information refer to the University of Idaho bulletin CIS 814, *Cull and Waste Potato Management*.

Other sources of late blight inoculum

Traditionally, the late blight pathogen *P. infestans* has not survived overwinter in the Idaho climate. Most outbreaks have occurred when the pathogen came into the state on infected seed. The dry, desert-like climate of Idaho is not conducive to late blight epidemic formation. In addition to the fact that research has shown that there is a less than 1% chance of a late blight epidemic starting from infected seed, the pathogen needs cool, wet conditions to sporulate and spread to surrounding healthy plants. This has meant that in a typical year where summer temperatures could reach the high 90's °F and rainfall amounts were less than 1 inch a late blight outbreak would be rare. Any late blight outbreaks that did occur were likely to be late in the season and limited to a few fields which may have had a micro-climate which favored disease development, such as shading or over irrigation.

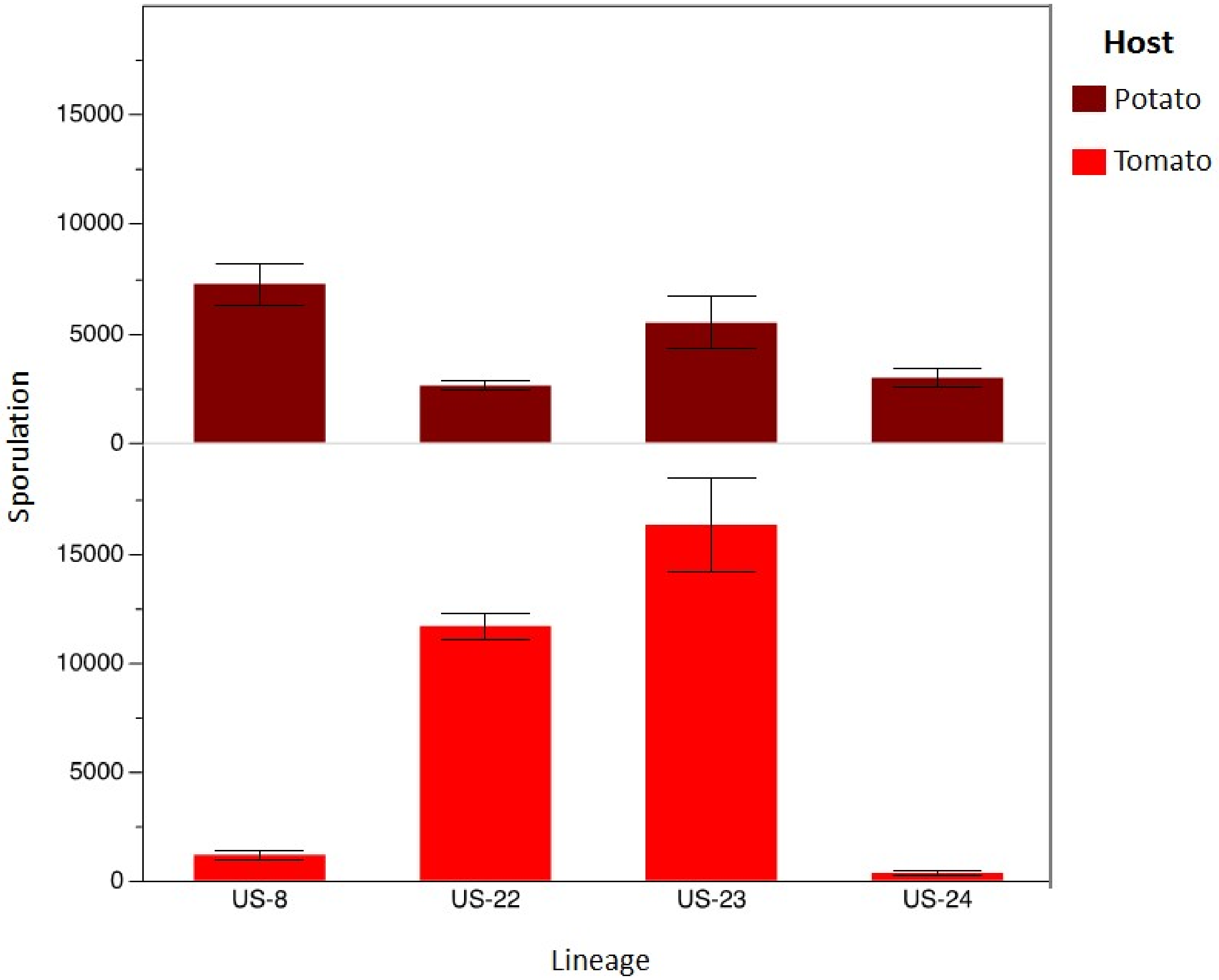
Until 2009, the predominant strain of *P. infestans* found in Idaho was the genotype US 8. In most of the rest of the US, this strain has been superseded by a new genotype US 23 (Fig. 2). In 2013, there was a small outbreak of late blight in south east Idaho. Isolates from that outbreak were genotyped and determined to be US23. In August 2014, the cool wet weather with daily rain showers and temperatures in the 50's – 70's °F were perfect for a disease epidemic to occur. The first occurrence of late blight was reported on August 12th and this was followed by further outbreaks throughout the counties from Madison south to Power. Testing of isolates from infected fields in these counties showed that they were all of the genotype US23.

Figure 2. Displacement of *Phytophthora infestans* clonal lineages over time. (From USAblight.org)



Research has shown that these newer genotypes of P. *infestans* are equally pathogenic on tomato and potato (Fig. 3). Epidemiological studies carried out in the Northeastern US and Midwest have shown that recent epidemics of late blight have started on tomatoes growing in home owners gardens and spread to surrounding potato fields. These infected tomato plants tend to be bought from big box stores and taken home to be planted out in the garden. As most of these tomato transplants are produced by the same companies for big box stores and then shipped all over the US there is the potential for this to be a new source of inoculum for an outbreak of late blight in Idaho if the conditions are conducive for disease development.

Figure 3. Pathogenicity of recent *Phytophthora infestans* genotypes on potato and tomato. From Fry et al., APSnet Features 2012 (http://bit.ly/1ELtEzJ)



Summary of the best late blight prevention options for spring 2021

With the chances of volunteer and cull potato survival over the winter of 2020/2021 being high growers should adopt the following practices to minimize the risks of a late blight outbreak this spring.

- Minimize cull piles during seed cutting and treating.
- Use a seed treatment with mancozeb, or if using a liquid seed treatment apply a mancozeb dust treatment after the liquid.
- Start scouting for volunteer potato emergence early in the season and around the time of emergence in potato fields planted in your area.

If potato fields are bordering home owners gardens where tomatoes are being grown and conditions are conducive for late blight (i.e. cool wet weather) be vigilant and scout the borders of the field for late blight symptoms.

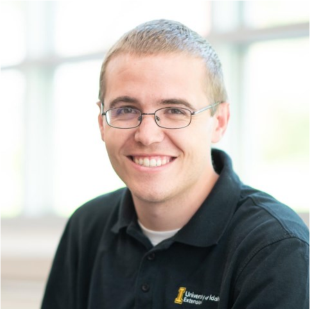
More information can be found at https://cropalerts.org/
View University of Extension bulletins related to potato pest management here: https://www.uidaho.edu/cals/potatoes/pest-management

AG Talk Report

Recent featured speakers for Ag Talk Tuesday

Reed Findlay serves as the University of Idaho Extension Educator for Bannock/ Bingham counties. He specializes in crop and horticulture, conducting research with alfalfa, forages, small grains, and of course, thrips.

Keith Esplin is an agricultural and water association manager with over 40 years' experience in the potato, grain, and related industries. He is currently Executive Director of the Eastern Idaho Water Rights Coalition and Eastern Snake Plain Aquifer Recharge.



Jason Thomas is the Extension Educator for Minidoka County. He delivers pest management and STEM-focused programs to Idaho farmers and youth. Check out his Insect Hunter youtube channel: https://www.youtube.com/insecthunter

Dr. Juliet Marshall serves as Head of the Department of Plant Sciences at the University of Idaho. She continues her extension and research efforts that focus on small grains, with special emphasis on the diseases that affect them.

Lance Ellis serves as Extension Educator in Fremont County. He specializes in home and commercial horticulture, small acreage farming, general agriculture and livestock production.

Lance Hansen is the Extension Educator in Madison County. He offers programs and classes that focus on financial literacy, 4-H youth development and food safety.

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Kimberly REC 208-423-4691
Parma REC 208-722-6708
Tetonia REC 208-456-2879
Twin Falls REC 208-736-3600
Entomology, Plant Pathology & Nematology 208-885-3776
Plant Sciences 208-885-2122
Soil and Water Systems 208-885-0111

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