

P.I. NEWS

The Pistachio Industry Newsletter • Volume 9 • March 2017

CONSUMPTION OF PISTACHIOS IS GROWING SIGNIFICANTLY

The Wonderful Company is satisfied with both the harvest and the consumption of pistachio nuts. "The harvest in California was enormous in late 2016. The volume was 900 million pounds, that is more than 400 million kilograms," says Tom Hazelof of the Belgian department of The Wonderful Company.

More consumption

Compared to 2015, the harvested volume had tripled. "Because of the larger amounts, prices dropped, and they are now at the level of previous years again. Because of this, consumers are buying more. It is truly remarkable how closely these are in relation to each other. A one per cent price rise practically immediately causes a one per cent increase in consumption, which is clearly a win-win situation. Especially in the US we noticed a considerably increasing consumption. This is in part thanks to the government. They are promoting a healthy lifestyle, which includes nuts. We are naturally also hoping for a larger consumption of pistachios in Europe. In the Netherlands, the consumption of pistachios is the lowest in all of Europe.

Hopefully it will also increase there. Peanuts and cashew nuts, on the other hand, are often eaten. We are hoping that Dutch retailers will put the nuts in a more accessible spot, such as in the fresh produce department. In many European countries, nuts have already been placed in that department in supermarkets. It is the perfect place for nuts."

The Wonderful Company is a market leader in the field of pistachio nuts, and is good for 65 per cent of the total harvest in the US. Pistachios with 50 per cent less salt are new in the assortment. "Some people do not want to eat too much salt, but do not want to go completely without salt either. With this product, we are anticipating a new target audience perfectly."

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PRODUCT QUALITY - Shopper 'disgusted' to find maggot in Tesco pistachio nut

Jon Brew was told the bug was a 'harmless pest'. Maggots certainly were not on the menu when a Tesco customer bought a bag of pistachios from a Watford store last week.

Jon Brew picked up the salty snack from a Tesco Express shop in Watford on Friday morning but was 'disgusted' when he opened one of the shells to find a 'shrivelled, red maggot' inside.

He complained to the supermarket giant on Twitter but was told the bug was a 'harmless pest' - a navel orangeworm larvae - which is a known issue relating to pistachios.

He was also told that the creature did not pose any food safety risks and that it was rare to find more than one in a single bag.

However he felt the response he received from Tesco was dismissive of his concerns.

'I have been eating pistachios here for years and I was disgusted when I found a shrivelled, red maggot in one of the nut shells,' he said.

'Her answer left me frustrated and disgusted, and there was no apology either. I feel other Tesco customers should be aware of this as there is no warning on the packaging.

'Personally I think they should keep their maggots in their pants and out of their food.'

Replying to Mr Brew on Twitter, Tesco did say it was sorry for the concern caused and 'understood how worrying this must have been' for him.

EDITOR'S COMMENT: Lucky Australia is free of Navel Orange Worm and we have the best food quality programs in the world.

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Wonderful Pistachios paying big to destroy evidence for spokes-elephant

Wonderful Pistachios, known for its iconic *Get Crackin'* ads, launched an interactive online game, *Destroy Ernie's Evidence* featuring its biggest star, Ernie the Elephant. The pistachio-loving, computer-generated spokes-elephant made his debut last fall in the largest-ever *Get Crackin'* campaign, and entertained millions of football fans during Super Bowl LI. Now Ernie is unveiling a series of games that challenge pistachio fans to crack open the mystery of his quasi-memorable night of mischief.

Destroy Ernie's Evidence offers pistachio lovers the chance to cover up Ernie's shenanigans after his wild party with the Squirrel Sisters was captured on camera. After awakening and discovering that the SD card with all the embarrassing footage is gone, Ernie may be missing more than just his dignity. He'll do whatever it takes to destroy the incriminating evidence before anyone sees it.

In a series of online games released every two weeks on HelpErnie.com, fans can get crackin' on the case and win valuable prizes along the way. Follow Ernie through eight of his TV commercial locations while he tracks down the Squirrel Sisters and the infamous video. Players can explore interactive environments, hunt for clues to find the missing video footage, and enter for a chance to win prizes until the video is finally recovered and the grand prize claimed. The game can be played now through June 30. All prizes will be awarded after the sweepstakes ends.

"From partying with the Squirrel Sisters to inadvertently trashing a treadmill on Super Bowl Sunday, Ernie the Elephant has won the hearts of pistachio lovers everywhere with his larger-than-life personality," Michael Perdigao, president of the Wonderful Agency, said in a press release. "Now fans can fully engage with Ernie by joining him on a journey to uncover what actually happened on his wild night through this one-of-a-kind interactive gaming experience."

Adam Cooper, vice president of marketing for Wonderful Pistachios, added, "Ernie's influence has already led to pistachios' sales volume increasing by more than 35 percent. Whether you are throwing an Ernie-sized party to watch your favorite sport or playing our *Destroy Ernie's Evidence* game, Wonderful Pistachios is the smart snack to satisfy your cravings without compromising your healthy eating goals."

With more than \$100,000 in prizes up for grabs, including the ultimate Jeep Wrangler Rubicon grand prize, the mission to find Ernie's SD card tainted with the damning footage just got real. One lucky winner will have the chance to bring three of their friends to the hottest party in the desert with four



Coachella Music Festival VIP passes while two winners will receive \$10,000 to throw their own scandalous party. Two lucky gamers can also follow Ernie's lead and party all night with \$5,000 in credit from StubHub to attend sports, concerts or theatre events, and two winners can visit their dream destination with a \$5,000 Airbnb credit. Ten hardcore gamers can continue their adventure with a Nintendo Switch console and five launch games. Lastly, one lucky winner will get to experience Ernie's homeland in person with a trip for two to Kenya for five days, including roundtrip airfare, lodging and meals while exploring Masai Mara, Lake Nakuru and Amboseli National Park.

For more information on Wonderful Pistachios, the *Get Crackin'* campaign, or to view current and past commercial spots, visit GetCrackin.com or Facebook at [Facebook.com/WonderfulPistachios](https://www.facebook.com/WonderfulPistachios).



6 Simple Pistachio Recipes

Pistachios are one of the most underrated ingredients out there. Make the most of these delicious nuts with [these](#) pistachio dessert recipes.

OVERSEAS MARKETS

Pistachio declines on fall in demand

Pistachio prices fell by Rs 5 per kg in the national capital today largely due to fall in demand from retailers and stockists.

Adequate stocks position following increased arrivals from overseas markets too put pressure on pistachio prices.

Pistachio (hairati and peshawari) were down by Rs 5 each to settle at Rs 1,440-1,490 and Rs 1,540-1,590 per kg, respectively.

Traders said fall in demand from retailers and stockists against increased arrivals, mainly led to the fall in pistachio prices.

New Delhi, 11th March 2017

Real-time price discovery for pistachio in IME

TEHRAN, Mar. 07 (MNA) - CEO of Iran Mercantile Exchange on the official opening ceremony of trading pistachio in IME announced a real-time price discovery for pistachio.

According to the report by the IME's International Affairs and PR, on Monday, March 6, the official opening ceremony for trading pistachio in IME held in IME's trading floor attended by Ali Tayebnia, Iran's Minister of Economic Affairs and Finance, Mohammad Reza Pourebrahimi chairman of the Economic Committee of the Parliament of Iran, Shapour Mohammadi, chairman of SEO, Mohammad Ali Tahmasbi Deputy Minister of Agriculture as well as media reporters and journalists.

At the beginning of the ceremony, CEO of IME, extending his warm welcome to the audience, stated that pistachio is one of the country's strategic products and for globalization of this commodity it is necessary to provide prerequisite of being the price reference in the world through creating an integrated market.

Hamed Soltaninejad added that trading Pistachio in IME will promote the brand of Iranian Pistachio and will provide the possibility of direct presence of international customers in this market via the online dissemination of trading prices and volumes in the country and the world. So, given the 40% share of Iran in the global pistachio market, we must play a role in price discovery for this commodity and the derivatives markets will contribute to achieve this goal.

Thereafter, he outlined the IME's performance and programs in agricultural sector over the Persian calendar year 1395, and stated that since the beginning of 1395 up to March 2 compared with the same period last year IME has experienced growth in trading volume and value in most areas and by the support of Minister of Agriculture the agricultural sector is enjoying a significant position in the IME.

In this regard, he added that during last year, 753 thousand tonnes of agricultural products were traded in IME and over the current year this figure exceeded 2 million and 360 thousand tonnes representing 213% growth in trading volume and 189% growth in trading value of agricultural products.

Soltaninejad said that by implementation of Article 33 of law of increasing the productivity of agriculture sector on maize and feed barely over a million and 150 thousand tonnes of feed barley and 600 thousand of maize were traded.

Referring the one of the IME's function as a market regulator for agricultural commodities and the necessity of employing long-term and futures contracts in this area, CEO of IME stated that derivatives market is of high liquidity and has many market participants. A product such as pistachio has the potential to

be traded through new financial instruments in derivatives market. Iranian pistachio production volume in 2015 totaled 230 thousand tons and the market value of 50 billion rials. High volume and value of trading pistachio and the large market participants in this market as well as existence of suitable warehouses for storing this commodity are exactly the required conditions to create a well-functioning derivatives market.

Pistachio exports to Europe up 5% in 2016:

TEHRAN - Iran has exported €232 million worth of pistachios to the European markets in 2016 to register a five percent rise compared to 2015, the European Union's statistics agency Eurostat was cited by Tasnim news agency on Saturday.

The country had exported €220 million worth of the commodity to Europe in 2015; Germany, Spain and Greece have been the leading importers of Iran's pistachios.

The U.S. was the top exporter of pistachio to Europe in 2016 with €370 million worth of the product being exported from the country to the European markets.

OVERSEAS NEWS

Pistachios are ideal for inland Spain

It could take the place of olives as the new Spanish green gold. It is the crop that could stop rural depopulation, giving its people a profitable and sustainable way of life, and it won't be affected by the end of CAP aid, since it does not receive any subsidies. In short, it is the great hope of Spanish producers for the coming decades. Based on this information, not many are likely to guess which crop we are talking about - it's pistachios!

In Spain, there are currently more than 12,000 hectares devoted to the cultivation of pistachios, almost all are concentrated in Castile-La Mancha, which accounts for up to 80% of the total, almost all were planted in recent years. It is a real boom among dryland producers, who are switching from deficient cereal crops to pistachio crops. Of course, they are not doing it all at once, but hectare by hectare, as pistachios, despite their great prospects, are not a golden calf. It takes six to seven years of intensive care before they start bearing fruit. In that time, the profits are zero and the expenses considerable - about 30,000 Euro per hectare. But according to sources within the sector, as soon as it starts to produce, the profit margins are "much better than those of traditional crops," and it can remain productive for decades.

"There are few countries in the world with the capacity to produce it and there is an increasing demand, with an annual increase higher than that of the rest of nuts. It has the same nutritional level as almonds and just as many or more culinary uses," affirms José Francisco Couceiro, head researcher at the El Chaparrillo Agro-environmental Research Centre and possibly the greatest Spanish expert on pistachios. Couceiro teaches five workshops a year to any growers or engineers interested in getting involved in the planting of this nut, "to prevent them from making mistakes and to teach them the essentials about pruning and other necessary cares." In recent years, his classroom has been packed. In 2016, each of its workshops attracted more than 90 people, which adds to the "avalanche" of calls and emails he receives with questions of all kinds.

Ideal for inland Spain

The pistachio is a nut of semi-desert origin. It thrives in dry climates and needs very little water. Iran and California produce it almost exclusively nowadays. In Europe, Spain is the country with the best climatic and geological conditions, but it only accounts for 0.02% of the world production. Sicily, with century-old crops, is the only leading European name. "The biggest hurdle for pistachios to grow in our country is the idiosyncrasy of the southern half of the Iberian Peninsula. It is very difficult to convince growers there to switch from an extensive monoculture like cereal or vineyard to a tree that will take years to start bearing fruit. People are not used to waiting; they look at the present and not at future profitability, but I predict that in Andalusia, as has already been the case in Castile-La Mancha, Extremadura, Madrid and Aragon, growth will be exponential."

Pistachios have a sale price at origin of six Euro per kilo (already peeled and dry). Taking into account that each hectare yields an average of about 1,000 kilos, this translates into 6,000 Euro per hectare. For open pistachios, the price ranges from 8 Euro to 9.5 Euro, depending on the size. And the price is even higher if you cultivate organic pistachios, which are very demanded in Europe. "It's a tremendous figure. And it is also worth stressing that after the initial period, the tree does not require great care, only an expense of between 500 and 1,000 Euro per hectare. That's why there has been such a craze for pistachios among some people. There are even investment groups looking for areas with deep soils and water to plant pistachios," continues Couceiro. He predicts that "they have the potential to replace olive trees as the great crop of southern Spain. Unlike with olives or almonds, there is no risk of demand collapsing due to oversupply. In any case, everyone is aware of what olives represent for Andalusian agriculture and only the most daring will take the step for now."

José Aguilar did not switch from olive trees to pistachios, but he owns the largest plantation in Andalusia. He was one of the pioneers in 1985. He invested all his savings in a crop in which nobody believed and he was right. His brand, Pistachos Nazaries, is possibly the most reputable in Spain. The entire Aguilar family earns its living from it. "In recent years, we have grown in terms of acreage by more than 100%, and the same can be said about the revenue. Everything we produce is sold. There is a huge supply shortage, and the same applies to the plants. If you want to buy plants today you have to wait for a year or two, because there are not enough," affirms José Aguilar, the company's manager.

The shortage and the boom of pistachios have even harmed Aguilar's company, which has frequently been a victim of the theft of trees. Up to 100 pistachio trees were stolen on one occasion, causing him a loss of 1,400 Euro plus the expense of replacing them (with the consequent six year waiting period without any production). "Sometimes I have come across people showing my farm to ten or fifteen people, making it look like it was theirs to convince them to buy their pistachios," he laments.

"There are many scams, so you have to be watchful," confirms Juan Gallego, manager of Iberopistacho, a leading company in consulting and brokerage. "In Spain, there is a tremendous shortage and a lack of knowledge; that is why scams are taking place. If you are scammed with a cucumber seed, you see it after 90 days, but with this you only realise after six years, so you have to be very careful. We work with the most powerful greenhouse in Europe, which is in Andalusia. Those are the seeds we sell to producers," he continues.

Iberopistacho is involved in all fronts. It supplies seeds to producers and then, when the tree begins to bear fruit, it buys the production in order to sell it in wholesale markets and food chains. It also packs and sells to the consumer. "It is a crop with

a wonderful present and an extraordinary future. Since the plant has been genetically formed in semi-deserts, it withstands the dryland conditions of the inland of the Peninsula without any problems. And when irrigated, it is a crop that makes the most of each drop. Almond trees offer a similar performance, but that crop is currently in a bubble that is about to burst, while the price of pistachios is rising slowly and there is still much room for growth to meet the demand," he continues. Gallego believes that Spain will be a world power as soon as it reaches the 50,000 hectares cultivated. When that time comes, he says, pistachios will be for rural Spain "in a similar position as that of wine or cheese today."

The Symaga group is one of those investment companies that did not want to pass up the opportunity. Alfonso Garrido owns the subsidiary of the group devoted to pistachios: Agropecuaria de Frutos Secos. "We have bought 66 hectares of pistachio trees with an age of between 25 and 30 years, in full maturity to bear fruit, and now we are working to plant a total of 200 hectares," he reveals. "Not only do you need to plant the seeds or grafts, but also to install a dryer and prepare machinery to select and pack the production," he continues.

The pistachio business does, in fact, not make sense without a drying plant. "After the nut's picking, you have 24 hours to remove the layer that protects the shell (similar to that of almonds) and dry it, otherwise it will spoil," explains Rubén Cruz, a Symaga plantation technician. The company expects to obtain about 1,500 kg per irrigated hectare, with a "very conservative" gross value of 6,000 Euro; eight times more than what they currently obtain from other crops like wheat, barley or peas." The CAP is providing less support and we thought that now was the time to change. Around our estates, in Ciudad Real, there is a craze; the fields of La Mancha are undergoing a huge transformation. Pistachios are being planted even in old vineyards," explains Garrido.

Spain is still far from fulfilling these golden prospects. The country consumes about 15,000 tonnes of pistachios per year, but only produces 3,000 tonnes. Of the total consumed, 99% is roasted and salted (in 'snack' format), which according to producers kills the nut's taste and properties (in addition to being generally the worst quality). In other words, it is first necessary to educate the palates of Spaniards. "That is one of our missions; we want the consumer to know what a natural pistachio smells like, and to be familiar with the different varieties that can be used in their dishes, with pastas, salads, desserts, etc.," points out the manager of Iberopistacho. The sector is still light years away from that of almonds, for which Spain has 400,000 hectares cultivated, making it the world's third largest producer.

Not all investors are producers; Carlos Suárez is an agronomist. He has participated in international cooperation missions with the Red Cross in half the world and on his return to Spain he had a clear plan. Together with another partner, he founded New Crops in mid-2016. "We wanted to dedicate ourselves to innovative crops that do not depend on CAP subsidies, and today we are very much in love with pistachios. We have planted six hectares, which will still take a while to become productive, and in the meantime we sell pistachios from other growers and provide advice and sell pistachio trees through a nursery. The business has been profitable from the start," he confirms.

"People see pistachios as an alternative to subsidised agriculture; for the rural world, it is like being in a desert and seeing an oasis." Small towns are currently becoming depopulated due to a lack of economic alternatives. With the CAP, the older people can make a living, but the young ones have to emigrate. Pistachios have the capacity to change all that," assures Suárez.

ACKNOWLEDGEMENT: elconfidencial.com

Afghanistan's Green Gold: Taliban Terrorists Earn \$15 Million a Year Selling Pistachios



Taliban jihadists generated \$15 million for terrorist activities in 2016 from harvesting Afghanistan's "green gold," pistachios, over 32,000 hectares in the Kushki Kuhna district of the country's western Herat province.

"They are being collected by the Taliban and armed locals," lamented the head of the Badghis governor's office, Sharafuddin Madjeedi, referring to the pistachios, reported Agence France-Presse (AFP) last year.

Mohammad Chishti Modudi, the Kushki Kuhna district's administrative chief, told Pajhwok Afghan News that "an investigation by agriculture experts showed \$15 million in annual income from [the] pistachio crop in the district lined [the] Taliban's pockets."

"He said two pistachio forests spread over 32,000 hectares of land existed in the district," notes Pajhwok, adding that "the forests had been partially destroyed by local powerful individuals and Taliban."

However, the Taliban managed to illegally harvest up to 40 percent of the country's crop after it raided the pistachio forests in Herat last year.

Afghanistan's "pistachio belt" runs through the provinces of Badakhshan in the northeast; Kunduz in the north; and Herat in the west.

The U.S.-backed Afghan National Defense and Security Forces (ANDSF), which include soldiers and police officers, are unable to protect some pistachio forests in the war-devastated country because the Taliban closely monitors them and towns nearby.

"Government forces have no authority over the pistachio forests in Badghis province because they lie in Taliban-controlled areas," explained Hafizullah Benish, agriculture director in the western province.

As of mid-November 2016, the Kabul-based government had lost control and/or influence of about 43 percent of Afghanistan.

Known as Afghanistan's green gold, Afghans proudly harvest world-class pistachios, noted Agence France-Presse (AFP) in July 2016, adding that the Taliban had laid its eyes on the lucrative crop.

Over the past few years, Afghan authorities have imposed a ban that makes it a crime to access pistachio forests in 11 provinces.

Nevertheless, the restrictions have failed to serve as a deterrent for Taliban and other "strongmen" in the country.

"Fears are growing that the Taliban and local strongmen are depriving" poor farmers in the war-ravaged country "of much-needed export income," noted AFP.

The Taliban also generates millions from the sale of the illicit drug opium, which is primarily cultivated in Afghanistan.

U.S. Gen. John Nicholson, the top commander of American and NATO forces in Afghanistan, revealed last year that opium and its heroin derivative "provides about 60 percent of the Taliban funding."

Taliban jihadists "tax the farmers, they tax the narcotics traffickers and this is how they derive their revenue," the top American general explained to Pentagon reporters.

It appears that the Taliban generates a substantial portion of the remaining 40 percent from the harvest of pistachios.

Pistachio profits are "not enough to compete with opium production that generates, according to the UN, about \$160 million a year in Afghanistan. But enough, for some, to make ends meet," pointed out AFP.

The Taliban may have more than tripled the profits from pistachios over the last two years, from an AFP estimate of \$4.2 million in 2014 to about \$15 million last year.

Mohammad Aman Amanyar, the forest supervisor for Afghanistan's Agriculture Ministry, pointed out in 2016 that "nearly four decades ago, before the near continuous wars that have since ravaged Afghanistan, the country was carpeted with up to 450,000 hectares of pistachio forest."

"Now, after violence and misery, '40 to 50 percent of the trees are gone for firewood, or are victims of climate change and drought,'" he added.

Late last year, Gen. Nicholson determined that the ongoing war in Afghanistan is at a stalemate.

ACKNOWLEDGEMENT: Article by Edwin Mora

ORCHARD NEWS

Can you pick a temperature inversion?

Just what is a temperature inversion?

It is when the normal vertical temperature gradient is inverted making the air colder near the surface of the Earth.

As they are difficult to measure, temperature inversions are an area farmers need to have a greater understanding of.

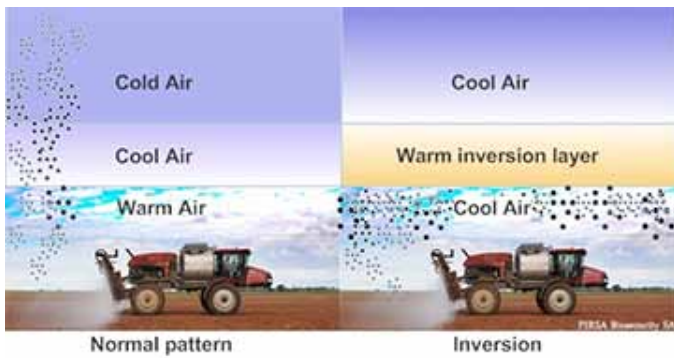
They are most likely to occur between sunset and the two hours after sunrise. So if you are planning any spraying operations during this period consideration should be given to the potential of such a weather pattern occurring. As chemicals can move long distances spraying during an inversion can have devastating consequences in your district.

The most common temperature inversion is a radiational inversion which forms particularly on clear nights near the earth's surface.

Usually after sunset the earth's surface cools because energy is radiated to space, however if the conditions are right and as air is a poor conductor of heat, there are times when only a thin surface layer of air is cooled leaving the air above almost unaffected and therefore warmer, acting like a blanket.

Visual signs of the presence of an inversion include:

- mist, fog, dew or a frost
- smoke or dust hanging in the air
- sideways movement just above the surface
- cumulus clouds that have built up during the day collapsing towards evening.



Other signs include:

- wind speed constantly less than 11km/h in the evening and overnight
- cool, off-slope breezes developing during the evening or overnight
- distant sounds becoming clearer and easier to hear
- smells becoming more distinct during the evening than during the day.

During surface temperature inversions, air near the ground lacks turbulence which prevents the mixing and dilution of chemicals.

Even with the correct equipment being used, this can lead to airborne chemicals remaining at high concentrations in the air at or near the surface. The weather conditions also make predicting the movement of such concentrations (direction and distance) difficult. As the risks of chemicals being transported away from the target area is high during such weather events, spraying should be avoided in order to minimise any potential impact on sensitive crops or people in the vicinity.

Further information is available from the attached GRDC temperature inversion fact sheet.

Technology unveils real impact of nut tree sugar-starch levels on production

Researchers are analyzing sugar and starch levels in wood and bark samples of walnut, almond, and pistachio.

Using a 'citizen science' approach, University of California researchers are analyzing sugar and starch levels in wood and bark samples of walnut, almond, and pistachio.

Anna Davidson, manager of the Carbohydrate Observatory at the University of California, Davis, says little is understood about the influence of tree carbohydrate reserves on crop yield, flower set, nut drop, and flower quality.

Even less is known about influence of tree management practices on the carbohydrate status of trees.

The goal of the Carbohydrate Observatory project is to develop a tool that uses starch and sugar levels to predict yield the following year and to better understand crop yield variability.

For a tree to survive into the next season, Davidson says it must prepare for dormancy, a strategy that relies on carbohydrate resources (sugars). The belief is the tree's carbohydrate status could influence tree performance.

By involving growers in this study, she can see differences between growing areas and learn how levels of tree carbohydrate reserves can influence yield, flower set, nut drop, and flower quality.

Growers who submit tree samples can track the carbohydrate status throughout the year and use the information to make or modify their management, and predict yields.

Since August 2016, tree nut growers in the Central Valley have been asked to submit monthly wood and bark samples to Maciej Zwieniecki's laboratory at UC Davis. The analysis consists of grinding nut tree samples into powder. A small amount from each sample is then washed in one milliliter of water to dissolve all soluble carbohydrates.

Using a colorimetric method, the concentration of sugars is measured and compared to lab standards. The remaining material is washed several times, centrifuged, and prepared for starch analysis.

It is treated with two enzymes to digest the starch to form the soluble sugars. These are again measured in colorimeter.

Davidson says the soluble sugar and starch process takes three days, and 80 samples can be tested simultaneously. She anticipates about 20,000 samples will be submitted to the lab this year. The lab currently receives samples from about 140 sites throughout the Central Valley.

According to Davidson, the lab needs three, four-inch current year shoots clipped from three random trees. Growers can remove the bark from the shoots, and then place the bark and wood in a self-addressed envelope and send the package to the lab.

Contact Davidson at adavidson@ucdavis.edu for the mailing address. Growers who participate should send samples every four to six weeks.

Davidson says test results over a year will show carbohydrate levels at dormancy, pollination, bud break, flowering, fruiting, harvest, and leaf drop. Pairing the information with climate and management can provide growers with a better understanding of the role carbohydrates play in production.

Growers can also apply the data findings to trees to help understand environmental stresses, including the impact of low chill hours or drought.

Samples are currently analyzed at no cost to the grower. Analysis results are available through a website.

Pixley area grower Dominic Pitigliano recently sent in samples from his trees. He wants to learn tree energy levels at the onset of the growing season. If the levels are adequate, he could limit fertilizer applications to slow tree growth to save costs.

ACKNOWLEDGEMENT:

Article by Cecilia Parsons, Mar 01, 2017

Weigh pistachio variety strengths, weaknesses for different growing areas

There is no "perfect" variety of pistachio for all growing areas. They all have their strong and weak points.

Given the breadth of California's pistachio industry, it's understandable that some varieties of the popular green nut can grow and yield better in one location versus another.

There is no "perfect" variety of pistachio for all growing areas, says Craig Kallsen, University of California Cooperative Extension (UCCE) farm advisor at Kern County.

"They all have their strong and weak points."

Kallsen, with assistance from the Larry and Beau Antongiovanni family of Buttonwillow, Calif., conducted a trial of UC female pistachio cultivars from 2012-2016. In addition to the newest UC female pistachio cultivar release "Gumdrop," varieties in the trial included Golden Hills, Lost Hills, Kerman, and Kaleghouchi.

The trial was designed to provide growers with an estimate of how the varieties could perform.

Kallsen says a specific cultivar growing in one area of the Central Valley compared to another area can differ on nut maturity by up to a month. Given the differences in climate, soils, water,

and harvest windows, growers can decide which variety might work best in their pistachio orchards.

Gumdrop, released in 2016, has the earliest harvest date of all cultivars. This can create challenges to growers if processors are not ready to receive the nuts, says Kallsen. In the trial, he said leaving the nuts on the tree past optimum harvest time led to some shell staining.

Growers also should consider bloom synchrony when choosing a variety. The average full bloom dates in the trial were: Gumdrop on March 27; Golden Hills, Lost Hills, and Kaleghouchi about a week later; and Kerman about April 6.

In the male varieties, the average bloom dates were April 28 for Tejon, April 4 for Randy, and April 10 for Peters.

"It is hard to go with just one male variety anymore," Kallsen noted.

Tejon is the primary male pollinizer for Gumdrop. There is no UC early male pollinizer for the cultivar. He suggested the primary male for Golden Hills, Lost Hills and Kaleghouchi should be Randy (75 percent of the time), and Tejon (25 percent).

For Kerman, the suggested primary pollinizer is Famoso (50 percent) with Randy and Peters both at 25 percent.

Kallsen says these pairings should work for those who believe the San Joaquin Valley climate will be warmer and drier in the future. For those who believe the past few years of drought and low chill are behind us, he says go 100 percent with the listed primary male, except for Kerman if sticking with Peters.

Kallsen notes that Gumdrop's early harvest may demonstrate it has less chill requirement and there could be reduced problem with Navel orangeworm. He said a timely harvest is essential for adequate nut quality.

Other comparisons between varieties include yields, nut quality, disease resistance, and tree growth characteristics.

Gumdrop on UCB-1 rootstock is a faster growing tree than Golden Hills or Kaleghouchi, yet Kallsen noted some uneven scion/rootstock growth. This variety has the least smooth graft union of the five varieties.

Golden Hills, Lost Hills, and Kerman are the most upright varieties. This characteristic is valuable, the farm advisor says, since the trees can have fewer sagging branches at harvest so pruning requirements could be reduced. Upright branches also allow for closer tree spacing.

Disease resistance scores were derived from data supplied by UC researcher Themis Michailides. Kerman and Lost Hills showed higher resistance to *Botryosphaeria panicle* and shoot blight while Kaleghouchi had the least resistance. There is no data on Gumdrop resistance.

Uniformity in crop maturity was highest in Kerman, Golden Hills, and Lost Hills. Longer blooms in Gumdrop and Kaleghouchi could mean more than one shake at harvest, said Kallsen.

Payable, marketable yields in the five varieties were similar, according to Kallsen. Lost Hills and Kaleghouchi produced the largest nut size and weight, but the traits varied with the yield.

For production of unstained or lightly stained in-shell split nuts, the highest percentage was Golden Hills, Lost Hills, and Gumdrop. Kerman ranked lowest of the five with more non-splits and blanks. Kerman and Golden Hills had the highest rank in shell hinge strength.

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