

Editor's note: As protection of the planet's flora, fauna and resources becomes increasingly important, China Daily is publishing a series of stories to illustrate the country's commitment to safeguarding the natural world.

Perseimmons: a sweet solution in rural Shaanxi

Planting trees helps locals earn living, retain water in mountain village

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Until recently in the mountainous village of Yangjia in Puping county, Shaanxi province, when it rained the water couldn't be absorbed by the barren soil there, so small gullies would be carved out of the mountainside and dirt roads would erode.

This would compound several issues faced by the remote village — a lack of fertile, absorbent soil, a lack of water and poor road and agricultural infrastructure.

Free trees on the mountainside to help fix the soil and mitigate erosion meant that a profitable agricultural industry was lacking for the villagers of Yangjia, and that the water that did fall in the area was lost, meaning that the resource was scarce for those who needed it most.

However, change came to the village in 2012 when the local government launched a program combining the prevention of soil erosion and the development of a profitable agricultural industry through the growing of perseimmons.

As a result, the mountains in Yangjia have become populated by profitable perseimmon trees.

The major beneficiaries of the program have been the local people and the environment.

While making the barren soil more fertile, the perseimmon trees have also helped retain water.

The transformation in Yangjia is an example of how development and conservation don't necessarily contradict each other, but can actually be complementary.

As stressed by President Xi Jinping on many occasions, lucid waters and lush mountains are invaluable assets, and the greening of the barren mountains in Yangjia has provided the momentum to environmentally and economically vitalize the rural community.

"In the past, when looking into the distance it was hard to see a single trace of greenery," recalled Yang Zhengchuan, a Yangjia village resident.

The barren land in the village and the severe water scarcity meant that his four-member family would seldom make more than 5,000 yuan (\$690) a year from farming, which used to be their main source of income.

According to the Ministry of Water Resources, China's water resources per capita on average is about 2,200 cubic meters. In Puping, it is just 190 meters per capita.

Yang's family's economic situation was so dire in the 1990s that he had to borrow money to buy milk powder for his two children, the price of which stood at 8 yuan per canister at the time, the 55-year-old recalled.

Their life would become chaotic during heavy rains. Soil and water



The top agricultural products from Puping, Shaanxi province — dairy goats and perseimmons — are painted onto cooling towers at a power plant in Puping. JIA TIANFENG / CHINA NEWS SERVICE



Left: Wang Wei (left), general manager of Yunji Perseimmon Company in Puping, Shaanxi province, and employees discuss selecting perseimmons to make wine in November. Locals are exploring new ways to make perseimmons more profitable. LI WUO / XINHUA

Right: A villager hangs up peeled perseimmons for drying in Puping in November. PHOTOED BY CHINA DAILY

rushed down from the barren slopes, making the road impassable. To make matters worse, parts of the road connecting the remote village to the outside world were sometimes washed out, he recalled.

That might make them go without adequate daily supplies for days, as they usually had to buy such necessities from the nearest township of Zhuangji, which is more than 5 kilometers away.

Under the program introduced in 2012, gently sloping land was converted into terraced fields available for villagers to lease for perseimmon cultivation, while the barren steeper slopes were afforested to mitigate soil erosion caused by rainwater.

In total, 90 hectares of trees were planted and 120 hectares of terraced fields were established in Yangjia and the two neighboring villages of Guzhang and Wangzhang. Additionally, 18 km of new roads were

built in the area to facilitate perseimmon farming and forest management, according to the Puping county government.

The program has increased the size of perseimmon orchards in Yangjia to 367 hectares, it said.

Qi Lei, an official overseeing water and soil conservation for the Puping government, highlighted a range of additional measures aimed at improving water retention in the county.

Semicircular cement enclosures have been installed around each tree to aid in retaining rainwater at the base of the trees. Additionally, small dams have been built in mountain gullies to absorb the runoff of rainwater and thus have more of the valuable resource impeded into the ground.

Thanks to these measures, 50 to 60 percent of the rainwater that falls in the area can be retained, effectively curbing local water and soil loss, he added.

Yang leased almost 27 hectares of terraced fields to plant perseimmons. When the trees started to bear fruit five years later, they became a reliable source of income, bringing in about 180,000 yuan a year.

He said local perseimmon production has more than doubled thanks to the water and soil loss mitigation program. This, too, has been aided by a drip irrigation system the local government introduced to help address irrigation difficulties in the arid area.

As the mountains have been transformed into a lush landscape, locals no longer have to endure the challenges of muddy roads during the rain and swirling sand during windy weather, he added.

Before 2012, villagers found it challenging to sell the dried perseimmons they produced locally. After giving some of their preserved fruit to friends and relatives, they took

what was left to markets and fairs in Zhuanqi to sell, Yang said.

Now, Yang sells all his dried perseimmons to an e-commerce company in the village named New Farmers.

Qiao Binlin, head of the company, is believed to be the first young person from Yangjia village to return after leaving. In 2012, the 35-year-old resigned from his executive position at a State-owned company in Hangzhou, Zhejiang province, to pursue selling dried perseimmons online — a venture he had been nurturing in his spare time since 2006.

"When I mentioned to the villagers in 2012 that I was selling dried perseimmons online, none of them believed me," he recalled. Underneath, Qiao maintained a steadfast belief in the substantial potential of the business because of his own experiences.

He managed to rack in 50,000 yuan in sales of the preserved fruit



in just one month on the e-commerce platform Taobao, he said.

By 2014, he'd made 1 million yuan in online sales, so he decided to found New Farmers. The company has even sold as much as 4.5 million yuan in dried perseimmons in a single day.

Last year, the company sold 1,500 metric tons of dried perseimmons and over 6,000 tons of various other agricultural products. With an annual sales volume of 100 million yuan, the company now employs more than 400 seasonal workers throughout the year.

Approximately 7,100 tons of perseimmons can be yielded annually in Yangjia, according to Qiao, and around 1,750 tons of dried perseimmons are processed, contributing to an increase of about 5,000 yuan in the per capita income of the village of 545 households and almost 2,400 residents.

As the local government intensifies efforts to integrate water and soil conservation with the growth of an industry around perseimmons, people in other parts of Puping have also benefited.

In the past decade, the county has constructed 30,000 hectares of terraced fields. While a total area of 8,600 hectares has been afforested especially for water retention, 3,000 hectares of economic trees such as perseimmon and pepper trees have been planted.

As of last year, Puping boasts 24,000 hectares of perseimmon orchards, with the annual production of dried perseimmons in the county reaching 70,000 tons. The overall annual output value of the perseimmon industrial chain has surged to 6.5 billion yuan.

The booming industry now directly employs about 190,000 people, with 70,000 more engaged in the whole industrial chain.

With a significantly improved economic situation, Yang and his family have bid farewell to their old and dilapidated cave dwelling and moved into a new home with modern amenities.

Reflecting on the past, Yang recalled how leaving their hometown to work as migrant laborers was once thought of as the only means for young villagers to sustain themselves. Enticed by the thriving perseimmon industry, however, many young villagers are now returning to their hometowns.

"Previously, sightings of young individuals in the village were rare. Nowadays, encountering them is a common occurrence," he noted.

Scientific steps limit soil erosion on Loess Plateau

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In the rugged terrain of the Loess Plateau in Shaanxi province, northwestern China, remarkable transformation is taking place in Suidu county.

"This region used to be severely affected by soil erosion, but after years of scientific management the amount of sediment from here that ends up in the Yellow River has been substantially reduced," said Guo Jian-jian, who heads the ecological engineering department at the soil and water conservation bureau of the Yellow River in Suidu.

In 1953, Suidu established the Xindiangou experimental site, now called Xindiangou Water and Soil Conservation Demonstration Park, among others to study ways to combat soil erosion in the loess hills and ravines.

Through over 70 years of exploration, a "three lines of defense" integrated management model tailored to the local topographical features of loess hills and ravines has been formulated in Suidu.

The first line of defense focuses on constructing terraced fields on the ridges and upper regions of loess hills where the slopes are relatively gentle. Trees and a rotation of grass and crops are planted on the terraced land and are constructed to trap silt, erosion and enhance soil quality.

The second line emphasizes the cultivation of shrubs along with grass on steep ravine slopes to stabilize hillsides and prevent erosion.

The third line involves the construction of wrap-land dams, or silt dams, at the bottom of ravines for further flood control, sediment trapping, and farming. The wrap-land dams are constructed to trap silt, and the silted land on the dam can be used for agricultural use.

The system combats soil erosion from the very tops of the hills to the

bottom of the ravines. With these three lines of defense, when rain strikes, the vegetation on the slopes of varying gradients acts as a security barrier, setting up layers of defense to prevent soil from easily carrying away sediment.

The rich sediment intercepted by wrap-land dams is then used to plant various cash crops.

In the early 1950s, research was also carried out in Xindiangou on the cultivation of forests that could enrich the soil and conserve water as well as be economically profitable.

Fruit trees of over 170 grape varieties and more than 20 apple varieties along with locust trees were introduced from abroad for experimental plantation on the loess mountains. The first mountainous orchard in northern Shaanxi established in Xindiangou is now a pillar industry for regional economic development after years of agricultural plantation.



Xindiangou currently boasts over 100 species of woody plants, more than 30 types of grasses, with a vegetation coverage of over 75 percent, achieving a remarkable sediment trapping rate of 98 percent, according to the local government.



This system has raised the soil conservation rate to 80.08 percent. The lush greenery has become an invaluable asset to Guo.

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