



# CITRUS DELIGHT

PHOTO: DR TAHIR KHURSHID

Nurserywomen from Pakistan learn 'chip budding' technique at Thanathon Orchard, Fang, Thailand.

**Mandarin and orange producers in Pakistan discover their orchards can yield 50% higher incomes by adopting new production and marketing strategies**

## KEY POINTS

- Greater variety choice, improved orchard management techniques and more efficient use of inputs are helping to increase citrus production in Pakistan.
- Greater quality, in addition to greater productivity, also has the potential to raise citrus producers' incomes.
- The same ACIAR project also demonstrated project impacts can be delivered in ways that empower women.

## BY DR TAHIR KHURSHID

NSW Department of Primary Industries, Australia

**P**akistan is an important global producer of citrus, particularly of high-yielding, hybrid mandarins called Kinnow. This production base was prioritised within the Australia–Pakistan Agriculture Sector Linkages Program (ASLP)

for additional input from agricultural research. As a result, ACIAR funded the NSW Department of Primary Industries and Pakistani research institutes to work with Pakistani citrus producers.

The project took a broad, whole-orchard and value-chain approach to identify the key issues affecting the income-earning potential of orchards. Our key achievements relate to the introduction of varieties and rootstock that extend the harvest season, the introduction of more efficient furrow irrigation systems, the trialling of quality payment systems, capacity building through engagement with training activities and greater inclusion of women.

## IN THE ORCHARD

Our biggest achievement was the introduction of new citrus varieties that create opportunities for citrus producers to earn more by increasing production in a novel way—by extending the harvest season. Rather than distributing this

material using existing flawed pathways, the project introduced the capacity to produce clean nursery trees.

This involved constructing clean screenhouses infrastructure and then demonstrating the benefit of this approach to nurserymen/women and growers. While the technology was taught to our project partners, it has since spread to the commercial nursery sector. They have now multiplied the budwood, thereby making the new varieties available to the growers.

The commercial nurserymen have now constructed three commercial screenhouses in Punjab and Khyber Pakhtunkhwa (KP) provinces.

In the orchards themselves, yield and quality were important targets of project activities. Particularly striking was the impact from the adoption of improved irrigation systems. Pakistan normally uses flood irrigation systems where there is no control of water and significant waste of water. Over-irrigation can create quality problems



**THE PROJECT ENGAGED HEAVILY IN CAPACITY BUILDING, BRINGING 54 PAKISTANIS TO AUSTRALIA FOR TRAINING, INCLUDING SCIENTISTS, GROWERS, PACKERS, WOMEN AND POSTGRADUATE STUDENTS**

A group of women from Pakistan look at the fruit trellis system at the Royal Project in Chiang Mai.

In November 2014, three progressive nurserywomen were selected from this group to participate in training held in Thailand at the Maejo University and at the commercial Thanathon Orchard nursery in the Fang district of Chiang Mai.

On their return from Thailand, we monitored the training of the women very closely. On the basis of their interest and dedication to help rural nurserywomen, two women—Samina Naz and Iffat Kalsoom—were selected for advanced training in nursery management in Australia, held in April 2015.

Since their return to Pakistan, these skilled nurserywomen have trained other women in their region and have increased their profit margins by budding trees in the sanctuary of their own household and producing high-quality citrus trees. The women were able to make an extra profit of 100 rupees for each high-quality tree.

The women trained through this project are now industry leaders, implementing changes to their own businesses and helping to train other women in their region. They have also found their voices, gained through increased confidence and experience, and have told ACIAR—including its CEO and Commission when they recently travelled to Pakistan—that they want to be included in the next program. They want to apply their knowledge and techniques nationally in the nursery industry, focusing on women. They are also interested in learning more about marketing.

More broadly, the project engaged heavily in capacity building, bringing 54 Pakistanis to Australia for training, including scientists, growers, packers, women and postgraduate students. The project also resulted in 10 Pakistanis receiving postgraduate degrees (masters or PhD) and invitations to attend and present at international conferences. We have produced 36 videos about the project and nine training packages. ■

#### ACIAR PROJECT

**ACIAR PROJECT:** HORT/2010/002: 'The enhancement of citrus value-chain production in Pakistan and Australia through improved orchard management practices'

**MORE INFORMATION:** Dr Tahir Khurshid, [tahir.khurshid@dpi.nsw.gov.au](mailto:tahir.khurshid@dpi.nsw.gov.au)

**MEDIA LINKS:** Pakistan Women's Empowerment in citrus nursery production, [youtube.com/watch?v=3AV\\_iBgtUo](https://youtube.com/watch?v=3AV_iBgtUo)



PHOTO: TAUSEEF TAHIR

Australian review team inspecting a screenhouse and Australian citrus varieties.

which can cause root diseases. Since the Pakistani growers are poor and cannot adopt pressurised irrigation systems, such as sprinklers, we helped them to convert the orchards to furrow irrigation systems.

Furrow irrigation systems involve diverting water into trenches that run the length of an orchard, under the tree canopy. It is an easy system to adopt and research demonstrated it not only saves water—an important outcome given the effort Pakistan is putting into improving water-management practices—but also increases both quality and yield of the trees.

The Flood Rehabilitation Project in KP province adopted these project outcomes, giving away a range of fruit trees, including citrus, peaches and apricots, to growers willing to adopt the new irrigation system. Meanwhile, improved citrus quality gave us the opportunity to trial a quality payment system. These trials involved four growers (two each in Punjab and KP provinces) establishing orchard blocks where all good management practices were applied. We then asked the growers to directly market the fruit rather than selling through wholesalers.

The growers found they were able to increase income from the high-quality fruit by 50%. Now they are applying the same techniques to other blocks, with the growers reporting a high-quality crop in 2016, which they have directly marketed.

#### EMPOWERING WOMEN

For cultural, safety or logistical reasons, women in Pakistan do not work in citrus orchards or packing sheds. This excludes half the population from a major and growing sector of the economy. The assistance provided through ACIAR, however, should in principle also benefit women, so the project responded when we identified an opportunity for women in the citrus industry to acquire new skills and business opportunities.

The opportunity came about when we noticed that in their backyards, women are actively budding trees in informal nurseries, with the material then sold by male members of the household. We recognised the value of this work and provided additional training to propagate and maintain healthy, high-quality citrus nursery trees for supply to local industry.

Central to our thinking was the precedent established by a non-government organisation (NGO) run by women called Pakistani Hoslamand Khawateen Network (PHKN), which translates to 'Pakistan courageous women network'. It is based in Haripur, in the Hazara District of KP province. Members of this NGO have experience running a nursery business that involved propagating trees in members' backyards.

In October 2013, seven Pakistani nurserywomen participated in the nursery training program held at the National Agricultural Research Centre (NARC) in Islamabad where they were also provided with nursery equipment—including budding knives and budding tape—to use their new skills in their backyard businesses.