

# Towards development of the Chilean basket willow sector

M.I. Abalos Romero

*Researchers in Chile worked with producers of basket willow (*Salix viminalis*) and its products – furniture and handicrafts – to revitalize a declining sector through improved quality and market development.*

**Manufacturing processes used for basket willow furniture have been updated to promote improved quality and design; shown, a roadside furniture market in Chimbarongo**



About 300 species of *Salix* trees and shrubs, as well as many other varieties and hybrids, are distributed at various latitudes in Europe, Asia, North America, and northern and southern Africa. The only species native to South America is *Salix humboldtiana* (Chilean willow), which grows wild along watercourses in Argentina, southern Brazil, Chile and Uruguay.

Many shrub forms of *Salix* species – including *Salix viminalis*, *S. purpurea*, *S. cinerea*, *S. caprea*, *S. triandra*, *S. alba* var. *vitellina* and *S. fragilis* – are used in wickerwork and basket-making. Chile has an optimal climate and soils for growing *Salix viminalis*, which is well known for its qualities in the production of baskets, packaging and furniture. Introduced into the country in colonial times, *S. viminalis*, also known as basket willow, now grows wild, often along watercourses and around springs,

and has spread from the centre of the country to the south.

The suitability of flexible shoots or switches of *Salix viminalis* for making handicraft items was discovered in the small town of Chimbarongo, 200 km from Santiago, in the early twentieth century. People began to cultivate the species and artisans were trained to produce furniture that reached the capital and elsewhere in the country. In Chile, activities related to the cultivation and manufacture of basket willow products have remained concentrated in the Chimbarongo area.

By the end of the 1990s, 223 ha were under *S. viminalis* cultivation in Chimbarongo, divided among 88 plantations, most of them belonging to small-scale producers. About 1 200 workshops were producing a wide range of willow articles, most of which were sold on the local market. However, producers

**Marta I. Abalos Romero** is Research Scientist in charge of the project "Integrated development of willow cultivation and industrialization", Chilean Forest Research Institute (INFOR-MINAGRI), Central-Northern Office, Santiago, Chile.



Cuttings are taken from one-year-old willow saplings for planting between June and August

large trade in products made of natural fibres. For example, large volumes of products made from rattan – a similar plant fibre which can be used to produce similar items – are exported from Asia to markets in Europe, North America and even Chile, where they are much in demand among high-income consumers.

Therefore the Chilean Forest Research Institute (Instituto de Investigación Forestal de Chile, INFOR), in collaboration with universities and other national institutions with funding from the Fund for the Promotion of Scientific and Technological Development (Fondo de Fomento al Desarrollo Científico y Tecnológico, FONDEF), carried out a project from 1997 to 2003 to promote the development of the Chilean basket willow sector. The focus was on improving product quality, developing the domestic market and increasing exports of raw material and products, especially furniture. The project involved the whole sector, from production to small-scale craftwork to basket willow industry (see Figure).

## BASKET WILLOW IN CHILE

### Cultivation and harvest

Basket willow is grown by taking cuttings from vigorous young saplings (aged one year) with well-formed shoots. The cuttings are planted between June and August on previously ploughed land. The first harvest of coppice shoots is carried out a year after planting, although it may be small. The plantation begins to produce a commercial yield in the second season and will continue to do so each year for at least the next eight to ten years, with no need for replanting so long as appropriate care is given (irrigation, weed, pest and disease control, manuring).

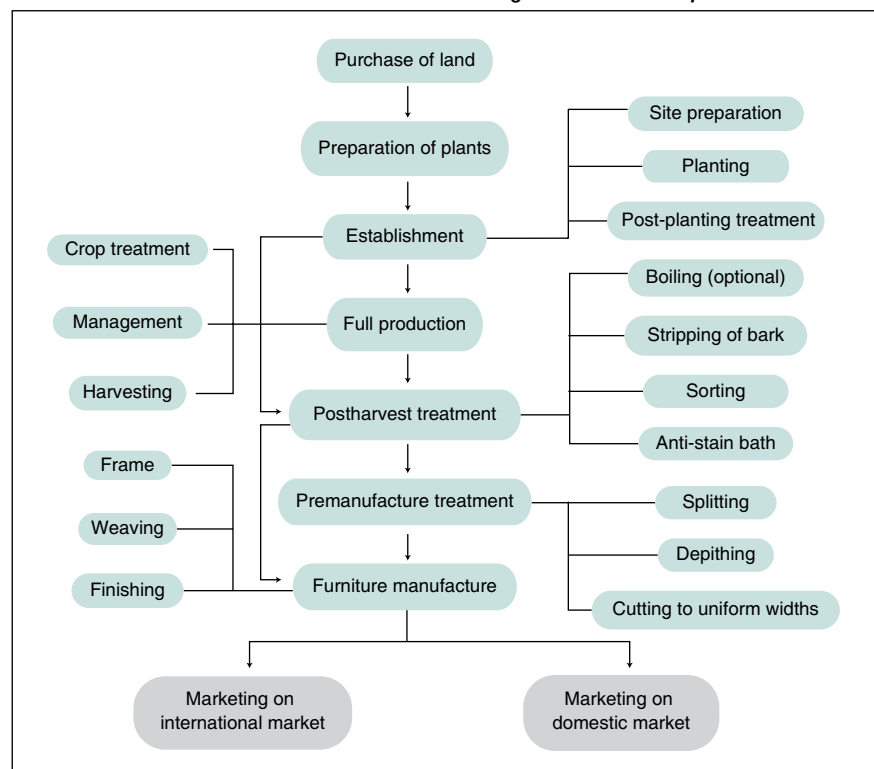
Basket willow is harvested in autumn and winter, when the plant has shed its leaves. The cut shoots or switches are sorted into bundles, which can weigh as much as 50 kg when the wood is still green. The switches can range from 0.8

and intermediaries had begun to export a large amount of basket willow (800 tonnes of dry material per year, valuing US\$750 000), so that the local artisans lacked the raw material needed for their products.

Moreover, other materials such as wood, leather and plastic were beginning to replace willow in the manufacture of furniture, packaging and other household articles. The quality of willow products was insufficient to compete on better markets and designs were old-fashioned. Thus the demand for the Chimbarongo artisans' work declined. The result was a slump in craftwork in Chimbarongo, reducing some 4 000 people connected with the sector to subsistence standards of living.

At the same time, in contrast with the situation in Chimbarongo, appreciation of natural products and craftwork has increased globally, as seen in the

Stages in basket willow production in Chile



to 6 m in length, with diameters of 0.4 to 3 cm. At good sites and with appropriate practices, production reaches 25 dry tonnes per hectare per year.

### Postharvest treatment

Postharvest treatment consists of stripping the bark and drying and sorting the switches for sale to local industry or exporters, tasks carried out by the producer or an intermediary.

There are two methods of stripping the bark. The most traditional entails leaving the harvested switches in pools of water until they start to put out shoots in the spring, then stripping them by hand with knives. Larger-scale producers prefer to boil the harvested switches and then strip them with electric machines.

The switches are then sorted according to length, diameter and defects (crookedness, stains, cracks).

### Production process

Before the Chimbarongo artisans can weave their products, they have to turn the basket willow switches into workable strips. First the switch is split lengthwise into three or four sections with a knife and a wooden wedge. Then the pith is removed from these strips either manually or with an electric tool. The strips are soaked in water to increase their flexibility and then cut to the required width with a hand tool.

The first step in making a piece of furniture is to build the structure, which may be of wood, bamboo or iron. Once this structure has been made, the covering – designed in advance – is woven entirely by hand. Relatively thick vertical strips are usually interwoven with thinner horizontal strips. The wickerwork is fastened to the structure with bindings of thin willow strips, nails and/or brackets, which make the final item stronger.

The finishing of furniture is what gives it its final appearance. It can be left in its natural state or coated with stain, paint or varnish. The surfaces to be coated must first be sanded or planed, so that

*Field of **Salix viminalis**  
aged one year*



E. BEUKER

*Basket willow  
switches are  
harvested in autumn  
and winter, when the  
plants have shed their  
leaves*



M. ABALOS

*Harvested switches  
are traditionally  
stored in pools of  
water until they start  
to put out shoots in  
the spring; then the  
bark is stripped by  
hand with knives*



D. KAJIJA



**Larger-scale producers use electric machines to strip the bark**



**Switches are dried after stripping**



**Sorting and bundling of switches according to length, diameter and defects**

the product adheres well to the base, and the bindings and ties must be firmly glued in place. Coating is carried out either manually or using a high-pressure spray-gun.

### **IMPROVING THE CHILEAN BASKET WILLOW SECTOR: DISPELLING MYTHS**

There are many obstacles to the development of basket willow production and the expansion of small-scale industries for manufacturing basket willow products – not only the lack of technical and scientific expertise, but also the lack of proper organization and the management problems of the Chimbarongo artisanal sector. The INFOR project's first step was to dispel four widespread myths which were preventing development efforts.

#### **First myth: variable species**

It was popularly held that the basket willow grown in Chimbarongo belonged to various species, which explained differences in the quality of the raw material. Thus people spoke about yellow (or good) basket willow and green (or bad) basket willow.

However, electrophoresis and molecular analysis of material collected from different crops and sites showed that all the basket willow grown in Chimbarongo belonged to the same species (*Salix viminalis*), indeed the same clone, which had been widely propagated in the area because of its ease of vegetative propagation. The difference in quality was explained by characteristics of the site such as soil fertility, irrigation and drainage.

#### **Second myth: narrow range**

The artisans – and the general population – held that basket willow could be grown only in Chimbarongo, and also that the best species for use in manufacturing products was the one that grew there (*Salix viminalis*).

Eight trials set up in the north, centre and

south of the country using various species of *Salix* showed that basket willow can be grown in other parts of the country besides Chimbarongo as long as appropriate sites are chosen – i.e. sites with deep (>50 cm) loamy soils, sufficient irrigation, good drainage, shelter from strong winds, and cold winters but no frost during the sprouting period. However, Chimbarongo did indeed prove to be the best zone for growing basket willow (and also certain other species of willow) as shown by higher harvest yields, measured in dry tonnes per hectare.

### Third myth: untransferrable skills

The Chimbarongo artisans shared an ingrained belief that it takes many years to train an artisan and that only men have the necessary skill and dexterity to learn the craft. This belief was preventing the involvement of women and the extension of skills to other parts of the country.

The strong hold of this myth among the Chimbarongo artisans governed their working conditions, as well as prices, delivery times, working hours and types

of product, thus preventing the implementation of projects put forward by businesses that were attracted by the unique qualities of basket willow and came to settle in Chimbarongo.

Transfer of skills was needed to stimulate competition and to generate new opportunities for rural populations in other places where basket willow cultivation had proved successful. The project therefore sponsored courses in the rural areas where basket willow trials had been set up, and about 120 people from those areas were trained in basket willow manufacturing techniques. The learning period turned out to be short (two or three months); people obtained further experience on the job and were thus able to improve the quality of their output.

Most of the beneficiaries of these courses were women, who wanted to contribute to their families' income and improve their role in the community, and were thus very keen to learn. The results showed that women had considerable capacity for working in basket willow, an activity that is also viewed

positively because it allows them to generate income while still caring for their home and children. In due course female artisans formed organized groups, for whom workshops on the production and marketing of their output were then held with the support of the local government.

### Fourth myth: absent market

In the late 1990s, as a result of the stagnation of the basket willow sector in Chimbarongo, products – mainly basket-work – were being sold on the domestic market at very low prices, leading to a belief that basket willow was little appreciated in the country.

A market survey carried out by the project among medium and high socio-economic groups in the country's largest consumer centre, Santiago, revealed that of 300 households, almost half had some type of basket willow furniture, mainly on the terrace or patio (23 percent) or in the living room (15 percent). Other rooms, such as the bedroom and kitchen, contained tables, shelves, trunks and smaller items such as hampers and trays of basket willow. The survey also revealed that 34 percent of these households used basket willow furniture in their second homes in the country or at the sea, and that in these cases its presence rose on terraces (to 34 percent), in living rooms (to 32 percent) and in main bedrooms (to 12 percent). However, consumers were dissatisfied with quality, uninspiring designs and substandard finishing. They said that if the quality were improved, the demand would grow, since such furniture fits in well in various areas of the home and goes with many styles of décor.

At the same time, market surveys carried out in Europe and Central America revealed considerable interest in Chilean basket willow products, especially furniture. However, if the demand was to be met, the quality needed to be improved and quantities needed to be increased to balance the high transport costs. These



*Training courses in basket willow manufacturing techniques were attended mainly by women, who had traditionally been excluded from the craft*

## Some elements of Chile's Standard 2039

### DEFINITIONS

**Varilla (switch).** Dry basket willow branch, cut to the greatest length possible, but not less than 80 cm, without leaves or secondary branches, with or without bark.

**Huira (strip).** Longitudinal section of a white or boiled basket willow switch, obtained by splitting and depithing the switch and cutting it into lengthwise sections between 2 and 10 mm wide and up to 3 mm thick.

**Mimbre crudo o blanco (raw or white basket willow).** Basket willow that has been debarked and dried, retaining the typical colour of the species.

**Mimbre cocido (boiled basket willow).** Basket willow that has been boiled, debarked and dried, acquiring a uniform brown colour; depending on the intensity of the process, the colour can range from light to medium to dark coffee brown.

**Mimbre teñido (dyed basket willow).** White basket willow that has been treated with dye to obtain a specific uniform colour.

### CLASSIFICATION OF BASKET WILLOW SWITCHES

#### According to type (surface)

With bark  
Debarked

#### According to variety (diameter)

Thin  
Medium  
Thick

#### According to category (postharvest treatment)

White  
Light coffee-coloured boiled  
Medium coffee-coloured boiled  
Dark coffee-coloured boiled  
Dyed

#### According to quality category

Grade 1  
Grade 2  
Grade 3

findings indicated the need to attract investments and to develop production in such a way as to combine artisanal work with the tools of business management.

As a result of these findings, the project initiated work to improve the manufacturing processes used for basket willow products, particularly furniture. It promoted the use of screws instead of the traditional nails, as well as the use of iron in the structure and the improvement of joints, assembly and finishing. The development of new designs was also promoted.

Courses and technical assistance were provided regarding quality control. A technological tour was organized for a group of artisans, giving them an opportunity to visit rattan furniture production centres in Asia and major showrooms and trade fairs in Europe and Central America, so that they could see for themselves the production systems adopted, the quality of the products, and current fashions and trends.

With a view to improving furniture design, the project established collaboration with the design schools of the country's main universities, which included work with basket willow in their workshops, setting up partnerships among designers, artisans and furniture companies, and creating new applications for the material. The designs were later shown at the first basket-willow furniture fair.

This learning process for both technical experts and artisans led to the formulation of two quality standards by the Standards Institute of Chile: Standard 2039 of 1998

on "Basket willow, physical features and categories of quality for raw material", which established the classification and physical features that basket willow must comply with as raw material for the furniture industry and wickerwork (see Box and Table 1); and Standard 2532 of 2000 on "Requirements and quality to be met by basket willow furniture".

### CONCLUSION

Expansion of the basket willow sector offers potential economic, social and environmental benefits (Table 2). Seven years' work by INFOR with artisans and

**TABLE 1. Required dimensions of basket willow switches according to Standard 2039**

| Variety | Length (cm) | Tolerance (cm) | Diameter (mm) <sup>a</sup> |         |
|---------|-------------|----------------|----------------------------|---------|
|         |             |                | Minimum                    | Maximum |
| Thin    | 80–160      | –3             | 2                          | 4       |
| Medium  | 180–280     | –4             | 5                          | 11      |
| Thick   | 300–400     | –5             | 12                         | n.a.    |

<sup>a</sup> Measured at the thick end.

**TABLE 2. Potential economic, social and environmental benefits of expanded basket willow cultivation**

| Economic benefits                                                                                                                                                             | Social benefits                                                                                                                                                                                                   | Environmental benefits                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| Higher rural production and income, linked to the production of raw material, the manufacture of products, and the supply of services for industrialization                   | Improvement in the well-being of the rural population, reduced migration, new sources of employment, improved capacity for self-management, promotion of community integration and better interregional relations | Forest diversification                                                |
| Possibility of increasing basket willow cultivation and production in rural areas, with possible use of the plantation yields also for industrial and domestic bioenergy uses | Possibility of using <i>Salix</i> plantations to generate new goods and services (pharmaceutical uses, forage, recreation)                                                                                        | Soil conservation and rehabilitation                                  |
| Diversification of farm production                                                                                                                                            | Interaction among producers, artisans and traders                                                                                                                                                                 | Flood prevention and reduced silting of rivers and other watercourses |
| Increase in property values                                                                                                                                                   | Promotion of specialization among the work force                                                                                                                                                                  | Control of soil erosion                                               |
| Development of a trade system for goods and services linked to basket willow cultivation and processing                                                                       | Incorporation of rural women in the work force, increasing their role in the community                                                                                                                            | Capture of carbon from the atmosphere                                 |

rural communities has clearly upgraded an activity that was in decline and has improved knowledge of cultivation and production of basket willow. However, there is still a long way to go. Micro- and small businesses still face financial difficulties. It is still necessary to expand training to cover all workers in this sector, to raise production levels to meet market demands and to attract investors. Those working in rural development know how hard it is to bring about a successful leap in quality and quantity. INFOR has concentrated on increasing knowledge and on removing some of the obstacles to expansion.

It is hoped that with time the joint work of artisans, businesses and the State will lead to full development of the sector, with a consequent improvement in the quality of life of the population of Chimbarongo and other rural areas that have made basket willow one of their main sources of income. With long-term planning for integrated development that includes increased production and development of domestic and export markets, expansion of basket willow production to other parts of Chile should not come at the expense of a flourishing basket willow sector in Chimbarongo. ♦