

**The Winston Churchill Memorial Trust of
Australia**

Report by **GEORGE MATCHETT**

2001 CHURCHILL FELLOW

CAROB (*Ceratonia siliqua* L.)

"To ascertain the requirements necessary to establish and administer a 'Carob Grower's Co-operative' and to source out promotional, managerial, technical data and machinery to establish an associated value-adding processing mill."



120 year old Carob tree in Catania, Sicily

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SYNOPSIS

The Winston Churchill Fellowship Trust has provided the possibility to view the **CAROB** industry in its current state within its native environment. The Mediterranean countries of Spain, Cyprus, Sicily and Malta were visited so as to obtain an insight and understanding of both the agricultural and manufacturing facets of this industry.

Each region has its own agronomical style and direction. Cyprus and Malta being very feudal and traditional, whereas Sicily and Spain particularly, are far more scientifically and purpose driven. Such emphasis is thus reflected in the degree and quality of processing of the raw carob pods. Downstreaming, essentially in Spain, is creating a longer and larger list of uses and because of a growing supply the potential for even more varied applications exists.

The tour highlighted that here in Australia, agronomically we are comparable with the best in skill and techniques however lack any statistical experimental data other than in private collections. Processing facilities are effectively non-existent.

The Fellowship has allowed the creation of an ever widening network of people willing to share their knowledge. Thereby strengthening current grower organisations, showing the need to import specialist machinery for downstreaming and hence develop in Australia at large the greater awareness of the benefits and potential of the **CAROB** in both personal use and industrial applications.

EXECUTIVE SUMMARY

NAME: GEORGE MATCHETT

**ADDRESS: 11 ERLA PLACE
WOORREE
WESTERN AUSTRALIA 6530**

TELEPHONE/FAX: (08) 99216247

E-MAIL: matchgs@dodo.com.au

PROJECT DESCRIPTION:

"To ascertain the requirements necessary to establish and administer a 'Carob Grower's Co-operative' and to source out promotional, managerial, technical data and machinery to establish an associated value-adding processing mill."

VALUABLE CONTACTS:

1. **CYPRUS** (i) Carob Growers Co-operative (manager - Aristos Kestos)
(II) LBG gum (E410) Mill (retired manager - Costas Iarias)
(iii) Private Kibbler (owner - George Arauzos)
(iv) Farm / orchard visits
2. **MALTA** (I) Department of Agriculture (advisor - Manuel Zammit)
(ii) Private Kibbler (owner - Emmanuel Morguello)
(iii) Farm visits (Albert & Freda Biedo)
3. **SICILY** (i) Spataro Mill, Ispica
(ii) Department of Agriculture, Syracuse
(iii) Botanical Gardens, University of Catania, Catania (Dr Minissale)

4. **SPAIN**
- (i) IRTA Research Station, Reus (director - Juan Tous)
 - (ii) Armengol Hermanos S.A., Tarragona (Carob Processing Mill - Jose Armengol)
 - (iii) Babar de Fruits Secs (Carob Nursery), Mallorca (owner - Eduardo Jordi)
 - (iv) Agricultural Research Centre, Mallorca (director - Juan Rallo)
 - (v) Camp Mallorqui, Mallorca (Carob/Almond Mill)
 - (vi) Productos Martin S.A. (Kibbler), Mallorca (owner - Juan Martin)
 - (vii) Cia.Grab. del Algarrobo(Research and Development Factory, Valencia (President - Blas Macias)
 - (viii) Borrell Machinery (Processing Machinery Manufacturer), Denia (Consultant - Charles Boddey)
 - (ix) Cia. Gel. Del Algarrobo (Carob Plantation), Jerez (Director - Luis Barba)

PROGRAMME OVERVIEW

The **CAROB** tree (*Ceratonia siliqua*. L) is a Mediterranean native that has been readily accepted into a large portion of the Australian landscape, where it grows and produces well.

It is this latter point and the usefulness of its pods, that has enticed a number of forward thinkers to go beyond a "few trees in the garden". Hence a number of well planned Carob orchards now exist. These will soon be coming into production and thus the need for a "Processing Plant/s". If we are to rid Australia of its "Import Dependence" for its very large Carob usage, now is the time to get prepared.

To this end the Programme journeyed through the selective regions of the four main countries to view and research the Carob growing and processing.

This summation will highlight the peculiarities and diversities of each region.

1. CYPRUS

This sun-blessed island of limited rain, calcareous soils and limestone outcrops has Carob growing wild everywhere. In fact the government, being supportive of the European Union's re-forestation regulation 2080/92, has made it illegal to cut down the Carob tree.

There is no real systematic orcharding of the tree. Trees are dotted everywhere, large and sprawling and are harvested irregularly using the traditional "knock-down, pick-up" method. The harvest is then taken to one of the kibbling factories.

One plant was a "Grower's Co-operative" aided and supported by the government until viable. This started in 1948. Currently it is run by a Secretary / Manager and five area representatives.

The other plant is a three generation family owned business.

Some better quality pods are sent to the Middle East as fruit, the seed and kibble to England.

The people of Cyprus still refer to the Carob as "Black Gold" because of its essential benefits in past history. Even today lots of villages have as a minor cottage industry the production of Carob Syrup or Honey.

2. MALTA

Another island of rugged limestone terrain with Carobs used as property boundaries along with the borders of stones and rock piles. These trees are large and weeping with very little apparent upkeep. The quality of the crop depends on the winter rainfall and is harvested in the "time honoured" fashion.

There is only one kibbling plant, from which the separated seed is exported to Sicily and the kibble is sold back to the farmers as a vital stockfood additive.

There is no advertising for the seasons pods. When it needs to happen everyone knows and it is all go.

3. SICILY

Of Italy's Carob production, 72% comes from the region of Regusa. The weather is a bit milder than Cyprus and Malta, the soil a bit redder, however with a strong calcareous content and limestone rocks. Rock fencing now encloses neater half to four hectare orchards. Trees are trimmed a little smaller and cleaner off the ground for stock undergrazing and easier hand harvesting.

Two multinationals and one old, old family operate the three kibbling mills and have introduced bulk-bins for collection. The seed is exported to Europe for refining into the gum E410 and the pulp sent to Naples. However the family mill now produces a "fine Carob powder" via its new "closed system" equipment for export into Europe. The mills are large, clean and efficient.

Carob in the country is still a vital element in village life and diet. New plantings and experimentation are obvious throughout the country-side within the region.

Unlike other countries discussions were guarded. The language barrier was more apparent here.

4. SPAIN

Unarguably the "hub" of the world Carob industry with three times more production than the other nations, with centres of concerted specific research. Many trial plots of various parameter exist throughout Spain under stringent watch, data collection and analysis. Both government and business are involved.

Thus Spain has become a "melting pot" of styles as it strives forward, while still encouraging the productivity of the traditional methods of the very, very slowly diminishing majority.

The diversity of Carob culture within Spain as visited, demands separate notations on each region.

(i) **Reus / Tarragona**

Home of the long established IRTA research centre and headquarters for conducting the three large growing trials across the region. Also the location of a large collection of cultivars, including a few from Australia.

IRTA Research Centre Headquarters, Reus



Juan Tous, Spanish Carob expert

More orchards are specifically Carob of medium to large trees on reasonable calcareous soils. Irrigation is rare, harvesting is traditional except for the recent mechanical trial.



Harvesting the traditional way – note the carpet of carob pods on the ground

5 year old producing, irrigated plot – Best in Spain



The main kibbler in Spain is here, buying direct from growers and grower's co-operatives from all over the country. Seed is exported for gum (E410) and the pulp is "pelletized" for stockfeed (innovative downstreaming).

(ii) **Palma de Mallorca**

The dryer, more limestone island off Spain, with a progressive Carob research programme trialling large seedlings with strong nurseryman support. Old fashion hand harvesting supplies the three small mills where seed is sent to the Spanish mainland and the pulp to the farmers. Besides the many wild trees the standard orchards are interspersed with almonds. The "Silvester Bee" is a developing major pollinator because of its efficiency, life span and gentleness.



Juan Rallo, Carob research director,
Mallorca

(iii) **Valencia**

Situated in another strong Carob region amongst the citrus is the world's most modern processing plant. Taking only the pulp and passing it through a totally "organic" and "closed" patented extraction process a whole range of high value products are produced. These are being primarily aimed at the health and medical markets in Europe, but also opens up other exciting potentials. As the enthusiastic director Blas Macias espoused "this is dignifying the Carob".



Carob syrup and fibre factory

(iv) **Denia**

Herein exists the world renown Borrell Company, the specialist makers of high quality precision separating machinery for all nuts and pods.

Carob kibbling machinery



(v) **Jerez de la Frontera**

Amongst the sherry vineyards on a more clayey, yet rocky soil, is the plantation of 120,00 Carobs. Just ten years old with eighteen cultivars, all irrigated on varying growing regimes. All data is regularly recorded and analyzed, including soil, water, leaf, etc. Mechanical harvesting was being trialled. This fantastic effort is readily shared and an onsite kibbler is envisaged for the future.



MAJOR LESSONS

CYPRUS

The early difficulties encountered in establishing a "grower's co-operative".

The need for strong government funding till viable.

The selection of energetic and progressive "area representatives".

The efficiency of medium size (6,000 tonne) kibbling plants.

The provision of cultivars that would be most beneficial to the world gene pool.

MALTA

The possible gene strain of a tough variety of Carob for harsh conditions.

The possibility that Maltese carob seed has a higher percentage of quality gum.

The small kibbler (1,000 tonne) is more ideal for more isolated areas of Carob as it would decrease transport space and cost.

SICILY

The undergrazing by stock.

The generally smaller trees through trimming for easier hand harvesting.

SPAIN

The need for continuous trials for improvement.

The ready sharing of collected and analyzed data.

The successful outcome of the latest five year irrigated trials.

The appropriate planting of selected cultivars to suit the specific regions.

The advantages of the "new" pollinating bee.

The amazing product range possible from the simple Carob pod.

The tremendous opportunity for add-on or "downstreaming".

The assurance that because of current networking, future establishment of Carob enterprises have every chance to succeed.

CONCLUSION

The foregoing summation is taken from copious notes along with 180 photos and a collection of numerous papers, books, etc., to form a good basis. This material is always available to be shared and to this end cross-media opportunities will be further taken up. A strong emphasis being towards the rural sector.

With respect to the agricultural aspects of the Carob industry a continued heavy involvement in field days, further articles to "Algarrobo" (the Carobs Australia newsletter) and invitations to TAFE to deliver horticulture lectures. Consultation via e-mail, phone, fax or even visitation is always most welcome.

All of the countries visited hold to the forestry action of the European Union (European Regulation Number 2080/92) where the Carob is promoted for its environmental usefulness and landscape rejuvenation. Cyprus protects the tree and the Spanish government financially supports the establishment and maintenance of reforestation for up to ten years. As the Carob is a "pest - free" tree, here in Australia government agencies and "greening" organisations will be encouraged to follow suit, the "Men of the Trees" has already done so in the past.

Research into the Carob is undertaken by the autonomous International Plant Genetic Research Institute (IPGRI) working with other world groups and has Australian funding. Thus why not the funding for local research where data would go into the worldwide gene pool?

Since the Carob industry is in its infancy, very little attention is given to it and as such processing of the raw material is almost non-existent. However, it is this area of development that will propel the industry to the point of "Import Replacement" in the near future and then onto a "Nett Exporter". The availability of the basic refined components then opens up the huge potential for entrepreneurial down-streaming and value adding, thereby supplying employment and revenue both locally and nationally.

As the necessary equipment has already been sourced out, it is now a matter of finance.

The preference is of course for a "Carob Grower's Co-operative" to fund and manage. The grower's association, Carobs Australia Inc., will thus be the first point of contact.

Little more needs to be said than to reiterate the "need" of, and for, Australian manufacturing.

Finally and most importantly it has been the provision of the Winston Churchill Fellowship Trust that has allowed a keener focus and greater drive to implement a most urgent need. The Carob industry at large will always be grateful.

I personally am honoured and will be forever thankful for the Trust's belief in the Carob industry and more particularly in me. I will always be supportive of the Trust's intent and ethos. The study tour has been a privileged pleasure.

