



Producing Pomegranates in South Africa

• Introduction

Pomegranate is currently ranked 18th in terms of fruit consumed annually in the world. It is thought that as a result of its health benefits, availability in convenient pre-packed aril form and the improvement in cultivar selections, it will move to 10th place on the list within the next 10 years.

The following table provides an indication of world production at present as well as some of the main cultivars grown:

World Production		
Country	Tons	Variety
India	1,200,00 tons	Bahgwa, Arakta, Ruby
Iran	650,00 tons	Malas, Saveh, Sara
USA	100,00 tons	Wonderful, Early Foothill
Turkey	75,000 tons	Hicaz Fellahyemez
Spain	60,000 tons	Mollar de Elche, Tendral
Israel	20,000 tons	Wonderful
Total	± 250,000 tons	

At present almost all of the world's pomegranate production is in the Northern Hemisphere. There is a window of opportunity for countries in the Southern Hemisphere to provide fruit to these markets in the counter season when fruit is not available as storage is limited to 4 - 5 months. In a survey conducted in the EU it was found that the following would be consumer trends through to 2010 which is positive for pomegranates as it falls within these predicted trends.

- Greater demand for convenience
- More diversity of choice
- Growth of demand for ethnic and exotic ingredients

- Increased demand for organic products
- More ready-cooked, take-out foods
- High growth in private label
- Polarisation of markets (premium and budget)
- Demand for open, honest and informative labelling

• Industry Structure and Marketing

The form of appropriate organisation depends on a number of factors including goals, size of business, the number of markets operated in, the level of involvement in the market, international experience, the nature of the product, the width and range of the product line, the nature of the marketing task and the risk involved.

Many organisational forms in developing countries are relatively unsophisticated. Many are 'domestic' based, this is, they may have a small export division within the domestic based operation. Most organisations deal through agents or other merchanting houses which have their own organisation. A typical example is flowers and vegetables, exported from Eastern and Southern Africa, which are generally sold through agents, auction systems or distributors in the country of destination which indicates a relative lack of sophistication.

Matrix organisation are the most sophisticated form of organisation and bring together four competencies: - geographic knowledge, product knowledge and know-how, functional competence in such fields as finance, production and marketing, and a knowledge of the customer industry and its needs.

CitroGold's management's task in the Pomegranates Producers organisation is to bring together all the above perspectives and skills to achieve particular objectives. Matrix structures require a fundamental change in management behaviour, organisational culture and technical systems.

One of the important things to remember is that structure must always follow strategy. Too often structures are developed long before a strategy is worked out. This can cause 'straitjacketing' and lead to an inflexibility which is both unnecessary and stifling. The important thing is to keep an arrangement which allows the organisation to grow, control and manage its destiny.

- Climate

Pomegranates prefer Mediterranean type climates with hot dry summers with little or no rainfall and cool winters but it can be seen from table 1 that pomegranates are grown successfully in very differing climatic conditions.



Location		J	F	M	A	M	J	J	A	S	O	N	D
Solapur India	Rainfall	187	122	120	77	30	4	0	1	5	16	40	116
	T High	28	27	29	31	30	29	30	32	36	38	37	32
	T Low	22	21	20	18	14	12	11	12	16	20	22	23
Sevilla Spain	Rainfall	6	9	53	68	45	37	23	28	30	40	35	20
	T High	34	34	30	24	18	15	15	16	19	21	26	30
	T Low	18	18	17	13	8	6	6	6	8	9	13	16
Kings County Calif	Rainfall	0	0	5	7	19	25	34	31	28	18	5	1
	T High	37	36	32	27	18	12	12	16	20	24	29	34
	T Low	16	16	13	9	4	1	2	4	5	7	10	14

Fruit ripening period is highlighted. Data has been inverted from the Northern Hemisphere.

Dormancy is required for fruit production and even though this does not occur naturally in Solapur, it is induced by a "Baha" treatment or water starvation and defoliation using a 2.5ml/litre Etherel spray. Fruit colour is achieved even at a comparatively high 'low' temperature and farmers invariably grow a few varieties to expand their production period.

- Soil Requirements

Pomegranates are tolerant of many different soil conditions but grow best in sandy loam to deep loamy or alluvial soils with a pH between 6.5 and 7.5. It will tolerate salinity levels of up to 4.5dS/m.

Depending on slopes, rainfall and drainage, many farmers row rip the soil to a depth of not more than 1 metre before planting although it is reported that root development is not much deeper than 75cm.

- Planting and Fertilisation

Trees react very well to the addition of compost to the planting hole. In India, Turkey and Spain up to 30 kg's of FYM (farm yard manure) is added to the planting hole as well as 1.25 kg super phosphate before planting. Holes are sometimes dug two weeks before planting and treated with Carbaryl dust as preventative measure against ants and termites.

- Irrigation and Water Requirements

Pomegranate trees are tolerant of drought conditions but require irrigation to produce optimum yield. Regular and sufficient irrigation without big variances in root zone moisture content is essential to avoid fruit cracking and improve fruit development.

Brackish water with levels above 4.5dS/m will affect the development of fruit. Under drip irrigation and ideal soil conditions, pomegranates require about 650mm of water per hectare per annum.





- Flower and Fruit Thinning

When trees of air layered plants are used, flowering will almost always start from August onwards in its first year. Flowers should be removed during the first two years of growth and no fruit must be allowed to form. From year 3 allow a maximum of 60 fruits to develop and remove all other flowers and fruit. Fruit is borne on terminal spurs on mature shoots. Thorns which may grow near fruit could also be removed to prevent skin damage.

- Pruning

Allow the tree to develop naturally during its first year of growth and during its first period of dormancy 3 - 5 trunks are allowed to develop as the frame and the rest pruned back at the base.

Because fruit and differentiated buds are located at the distal part of branches, pruning of these terminal parts will reduce flower and fruit production. Thinning and pruning of old spurs will encourage new growth and pruning of old branches will encourage the growth of new branches but great care should be taken with pruning during its first few formative years. Suckers must be removed regularly.

- Prevention of Fruit Cracking

Fruit cracking in young fruits could be due to deficiencies of Calcium, Boron and Potassium and in mature fruit imbalances of moisture or high fluctuations in diurnal temperatures. Eliminate high levels of fluctuation in soil moisture levels with regular and adequate amounts of irrigation during fruit development. Certain cultivars are more prone to cracking while others have been bred to resist fruit cracking.

- Harvesting, Grading, Packing and Storage

First fruits are harvested in the third year when approximately 50 - 60 fruit are allowed to mature. This equates to 10 - 15 kg per tree. During the fourth year about 80 fruits are allowed to develop increasing to 100 in the 5th year and peaking between 120 - 150 fruit from the 6th year onwards. Pomegranates are non climacteric and should be picked when ripe. An indication of ripeness is when the calyx at the

distal end of the fruit closes and the skin indents slightly. It has a metallic crack when tapped. Depending on the variety, fruit is harvested between 135 and 150 days after fruit set.

Care should be exercised when picking and handling fruit as the new varieties have thinner skins and could bruise if handled improperly. Fruit is picked into lug boxes. Fruit is usually harvested four times every 6 to 7 days over a 24 to 28 day period.

Fruit is normally graded according to weight and packed single layer in 3.5 to 5 kilogram boxes. Boxes are open on top and usually do not have lids.

Quality indices are:

- Free of cracks, cuts, bruises, sun scalding and decay
- Skin colour and smoothness
- Flavour depending on sugar/acid balance.
- Soluble solids content above 17 % with tannins below 0.25 %.

- Pests and Disease Management

No chemical agents have been registered as yet for application on pomegranates in South Africa. This is an issue which will need urgent attention.

False Codling Moth and Thrips appear to be the main pests in South Africa.

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