

Persimmon information kit

Reprint – information current in 2005



REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website www.deedi.qld.gov.au

This publication has been reprinted as a digital book without any changes to the content published in 2005. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest www.infopest.qld.gov.au
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website www.deedi.qld.gov.au or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

This publication was last revised in 2005. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.

This information has been made available to assist users to identify issues involved in persimmon production. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government



Before you START

If you have never grown sweet persimmons before, you will find this section very useful. It is a checklist of the things you need to know before you start. It will help you make the right decision about growing sweet persimmons. The information here is brief and to the point. We provide more detail on important areas and key issues in other chapters of the book. Symbols on the left of the page will help you make these links.

Introduction

There are two types of persimmon grown in Australia—astrigent persimmon and sweet (non-astringent) persimmon. The commercial industry is focused almost entirely on the sweet type, whereas it is very common for astrigent persimmon to be grown in backyards. Unfortunately many consumers confuse the two types and do not understand that commercially grown varieties are sweet.

A future challenge for the industry is to introduce sweet persimmon to more Australian consumers. Asian consumers are much more familiar with both sweet and astrigent persimmons.

Australia grows about 350 000 trees of non-astringent cultivars with an estimated fruit production of 450 000 trays. This is equivalent to an annual production of 2500 t. In comparison with world production of 2 300 000 t, Australian production is relatively small (less than 0.5% of world production). The average orchard size is about 440 trees.

Tree yields range from 5 to 35 t/ha due to improved orchard management. The average yield reported in one survey in 1999 was nearly 16 t/ha. Only 40% of the plantings are freestanding and the rest are trellised palmette.



Tree training
and trellising
Chapter 4
page 128.

The main sweet persimmon production areas are southern Queensland, northern New South Wales, Coffs Harbour, Sydney, northern Victoria (Cobram, Shepparton, Sunraysia), north-eastern South Australia (Riverland), and south-western West Australia.

Queensland grows about 200 hectares of sweet persimmons mainly in the following areas: Sunshine Coast, South Burnett, Toowoomba Range, Lockyer Valley, Childers/Bundaberg and the Granite Belt. Small isolated plantings exist in other coastal areas and on the Atherton Tablelands. It is estimated that the Queensland industry makes up about 40% of the Australian industry.



The modern industry is made up almost entirely of sweet (non-astringent) Japanese persimmon varieties. Fuyu is the most commonly planted variety in Australia (about 70%), followed by Jiro (15%), Izu (10%) and Suruga (5%). The newer sweet (non-astringent) varieties yield very attractive, sweet, orange-red fruit, which can be eaten soft or in a hard mature condition. These characteristics, together with Asian consumer familiarity, suggest that sweet persimmons have significant consumer potential, both domestically and internationally.

Persimmon trees are grown from grafted nursery stock in which the cultivar is grafted onto a selected rootstock. Trees have high yielding potential and are normally grown on trellises in intensive orchard blocks. Over-tree netting is important in protecting fruit from bird and fruit bat damage.

Marketing

Domestic

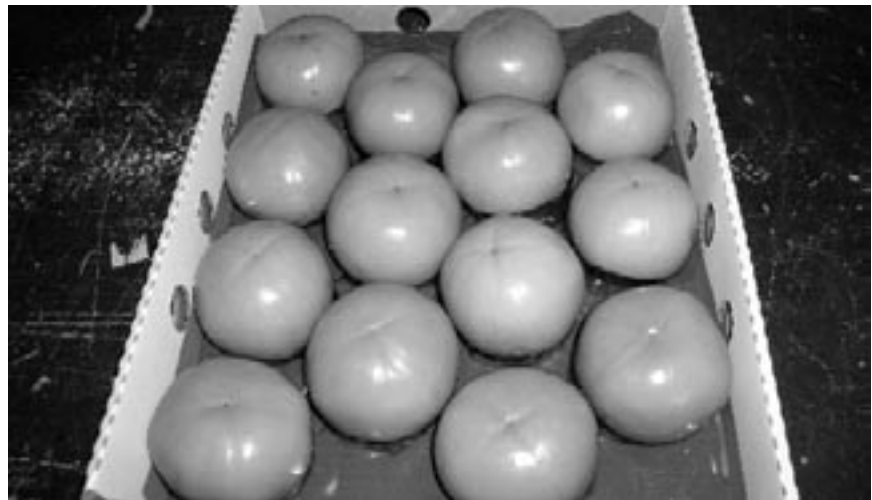
Australia's production period starts in the warmer semitropical regions of Queensland in late February and finishes by late June in the cool temperate regions of southern Australia. The majority of fruit is sold through the metropolitan wholesale markets in Brisbane, Sydney and Melbourne, but a significant quantity is exported to South-East Asia. Prices in all major Australian cities are extremely variable reflecting the variability in quality.

Good quality fruit can receive, on average, \$10 to \$18 per tray during the season. In contrast, poor quality fruit may receive as little as \$3 per tray. New Zealand fruit, our major competitor in the Australian and export markets, is available from late May to August.

Figure 2 Sweet persimmons in tray

NOTE

More promotion activities are urgently needed to increase consumer awareness of persimmon.



It is estimated that fewer than 10% of people in Australia have eaten non-astringent persimmon, so there is considerable potential to increase consumption of this fruit. Asian consumers like the sweetness and low acidity of persimmon.

Export

Exports of persimmons have increased steadily from virtually nil in 1990 to more than 100 000 trays in 2001.

The Australian Persimmon Export Company (APEC) is the largest Australian company, exporting about 60 000 trays per year. Major export markets are Singapore and Malaysia, with smaller markets in Thailand and Hong Kong. Quality and consistency of export fruit have been a problem limiting expansion. Prices for high-quality fruit in these markets are high, ranging from \$15 to \$20 per tray. In comparison, exports of New Zealand fruit have risen to 600 000 trays over the same period.

The major fruit quality problems have been a rapid softening of fruit during transit and storage, immature fruit, and uneven and poor colouring. Australian fruit is sweeter (more than 14° Brix) than New Zealand fruit.

Fruit quality

Domestic fruit quality problems vary within regions and states. A rapid softening of fruit in transit and storage continues to be a major problem in all regions except South Australia.

In the past, the percentage of marketable fruit has been reduced by as much as 60%. This is due to blemish marks (wind rub, petal adherence marks, sunburn, spots and speckles), calyx separation and apex cracking. Training trees onto trellis systems can significantly reduce the amount of blemish.

Fruit grown in coastal regions of Queensland and northern New South Wales do not develop a deep orange skin colour because of the lack of cooler night temperatures. By contrast, in South Australia fruit colour is excellent, but fruit size may be reduced up to two size grades because of stress caused by saline water and soils.

Know what you are getting into

Persimmons are an attractive crop for new growers since trees come into production relatively quickly and the crop is adaptable to a wide range of climatic environments. It also has a high potential yield per unit area, but current yields on many orchards are low due to poor management practices.

Growers are attracted by the fruit's characteristics that give it significant growth potential for both domestic and export marketing. However, be aware of the following constraints:

- The sweet persimmon is still largely unknown in many markets. Significant promotion and marketing development will be needed to overcome past adverse consumer experiences with older astringent persimmons. This development will be necessary to ensure that growers continue to receive reasonable prices if market volume increases in the next few years.
- Although the crop has a high potential yield per unit area, most of the fruit will be of inferior quality unless the trees are trellised, and high levels of crop management are applied. This requires skill and is expensive and time consuming. The need for pruning, fruit thinning and harvesting of a large crop over a short period of time means the crop is also very labour intensive. The impact of this labour requirement can be gauged from the fact that most commercial orchards consist of between 500 and 3000 trees.
- Persimmons are very susceptible to bird and fruit bat damage and netting is considered essential in most areas to achieve good production of quality fruit.
- Because of the need for trellises and netting, the crop requires a high initial capital investment.
- The persimmon industry is relatively new and small compared with other horticultural crops, so there is only a limited range of chemicals registered for pest and disease control. This may make it difficult to control these problems in the future.

For these reasons, it is recommended that new growers carefully analyse the market and prepare a business plan before proceeding. Thoroughly research all of the above issues with other growers, marketers, wholesalers, industry experts and consultants as you develop your business plan.

What you can expect to make

Persimmons are a relatively new crop and the lack of information on the economics of growing them put them in a higher risk category. Having said that, there are many good growers in the industry. Persimmon is not normally grown as the sole source of income. We recommend that new growers start with no more than one hectare of trees, learn how to manage these properly, and then increase their planting from there.

For these reasons, the economic figures that follow are based on an orchard of one hectare of trees.

Yields

Yields can vary widely, but three-year-old trees on a close-planted palmette trellis (approximately 1000 trees/ha) should yield about 7 kg of fruit and mature trees from six years about 30 kg. This equates to a potential yield of about 30 t/ha for a well-managed, mature orchard on a palmette trellis.

Prices

For average quality fruit, prices range from about \$18 per 4 kg tray for early season Izu fruit, to an average of about \$10 per tray in April in the peak of the season. Please note that early prices are not as high as in previous years, as more farms come into production.

Indicators of price and volume throughput for the Brisbane and Sydney markets are shown in Figures 3 and 4. This information has been supplied courtesy of Market Information Services, Brisbane, and Flemington Market Reporting Service, Sydney. Please contact Market Information Services for more detail.



For details on price and supply, contact Ausmarket Consultants Chapter 5 page 220.

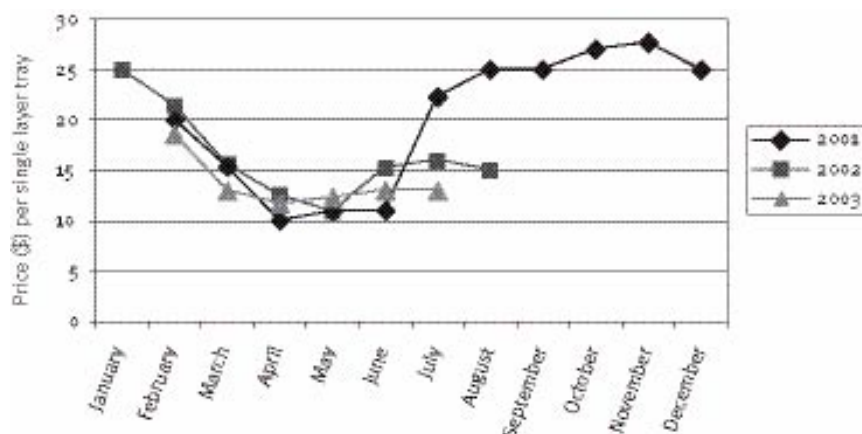


Figure 3 Average monthly price for single layer trays at the Brisbane market 2001 to 2003

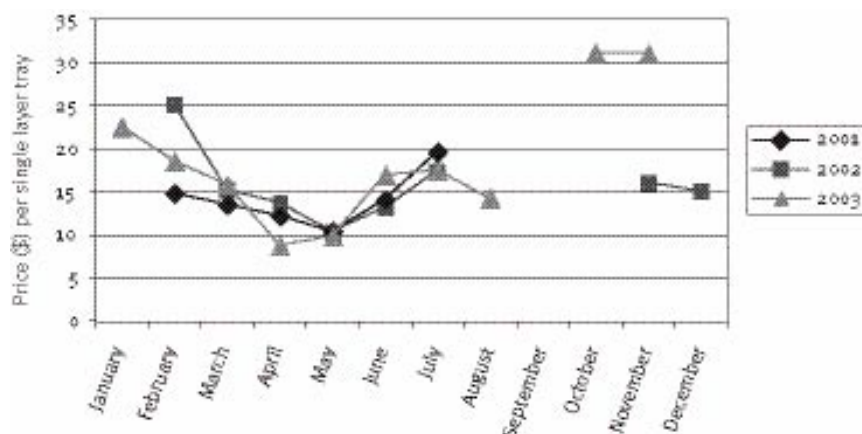


Figure 4 Average monthly price for single layer trays at the Sydney market 2001 to 2003

Production costs

Production costs are estimated to range from \$8.50 per tray for larger, well-managed orchards up to \$11 per tray for smaller, less productive orchards.

Gross margin and cash flow

No income is received until about the third year and annual expenses exceed annual income until the fourth to fifth year. Accumulated income should exceed accumulated expenses by the sixth or seventh year.

This is a short payback period compared with other tree crops.

At maturity, one well-managed hectare should conservatively return about \$12 000 after production costs are covered. This is based on an average yield of 4000 trays per hectare, average prices of \$12 per tray and costs of \$9 per tray. This covers all growing and marketing costs such as fertilisers, pest and disease control, casual labour, fuel, packing and wholesale merchants' fees. No allowance has been made in these calculations for house and land purchase, loan repayments, living expenses, capital items or fixed costs such as rates, taxes and depreciation of machinery and equipment.

The capital you need

Excluding the cost of house and land, it has been estimated that about \$120 000 is needed to establish a one hectare sweet persimmon orchard. This covers the cost of basic machinery (second-hand tractor, second-hand utility, sprayers and slasher), an irrigation system, a shed, land preparation, trellises and tree establishment.

Establishing one hectare of trees—with just irrigation, netting and V-trellising systems—would cost somewhere between \$32 000 and \$47 000. These figures assume a cheaper removable netting system is erected. More permanent netting structures will add considerably to these costs.

Further funds would be required in the second year, when trees begin bearing, to purchase a forced-air coldroom, a fruit grader, and miscellaneous harvesting equipment.

The farm you need

Soil

Persimmons can be successfully grown on a wide range of soils from light sandy loams to heavy alluvial clays. Preferred soils are light, well-drained sandy loams or loams with a minimum depth of 500 mm before clay or rock is encountered.

Where the topsoil is less than the minimum depth, mounding should be used to increase effective soil depth. Where possible, avoid acid soils naturally high in manganese because they increase the likelihood that persimmons will develop green blotch disorder.

Slope

Slopes of up to 15% are suitable. Machinery can be operated safely, a range of layout options is available and soil erosion is minimised. Steeper slopes present a major erosion risk and make it difficult to operate machinery safely. These slopes also require expert assistance in block layout and design, which is very expensive to develop and maintain.

Aspect

Slopes facing north and north-east are preferred as they are warmer and more protected from damaging south-easterly and westerly winds. Windbreaks are recommended on all sites to minimise fruit abrasion and assist orchard establishment.

Climate

Table 1 overleaf lists the optimum climatic conditions for the production of high quality fruit.

Based on these characteristics, ideal areas for growing persimmons in Queensland are subcoastal inland areas such as Toowoomba and the South Burnett.

Table 1 Optimum climatic conditions for sweet persimmon

Climatic factor	Explanatory notes
At least 1400 hours of sunshine are required during the growing season from October to April	This amount of sunshine produces fruit with the best colour and sugar levels
Mean daytime temperatures of between 15°C and 22°C are necessary during the autumn fruit ripening period from March to May	Mean daytime temperatures of less than 14°C may result in only a partial loss of astringency in normally non-astringent varieties. Daytime temperatures above 25°C may affect fruit quality, and temperatures above 35°C may produce severe sunburn of fruit
Winter chilling of at least 100 chill units is required (preferably 350–550 chill units)	Although persimmons are deciduous plants, and enter a rest period in winter, they appear to have a low chilling requirement for even bud break. They break bud in September, flower in October and are therefore less likely than other deciduous fruits to suffer flower and fruit damage from late spring frosts. Although low chill areas provide an opportunity for slightly earlier crops, high chill areas produce the best quality fruit
Minimal rainfall during the main fruit development and ripening periods is desirable	This minimises disease problems and other blemishes on the fruit
Protection from strong prevailing winds is essential	Fruit is very susceptible to wind damage and blemish. Wind protection is essential on all sites
Absence of frost at flowering time (mid-October) is required	Plant damage is avoided

Water supply

Irrigation is essential for the production of quality fruit. Water storage reserves to cover usage of 5 to 6 megalitres per hectare (ML/ha) are recommended. This may be reduced to 4 ML/ha in wetter areas but needs to be increased to 8 to 12 ML/ha in drier inland areas such as the Central Burnett and the Riverland and Sunraysia regions of southern Australia.

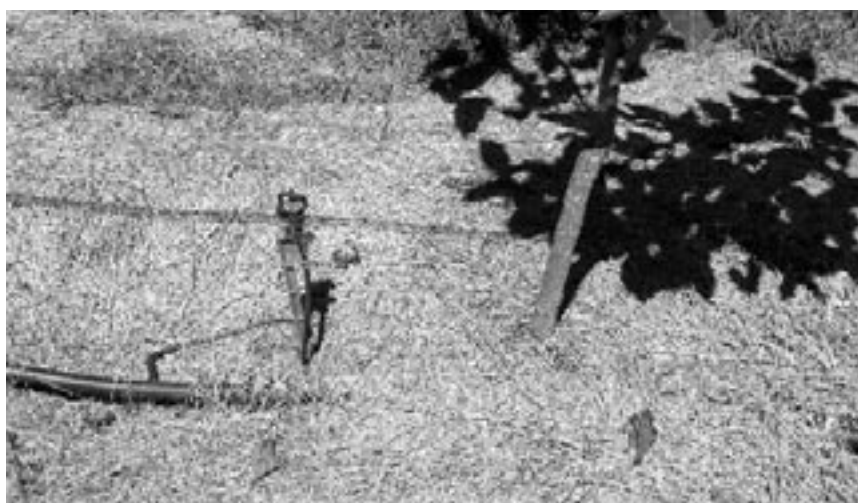


Figure 5 Irrigation is essential for sweet persimmon production

Water quality

As persimmons are sensitive to salt damage, irrigation water should not exceed 0.65 deciSiemens per metre (dS/m) and dissolved ions should be less than 400 mg/L.

The machinery you need

NOTE
A 4WD tractor is recommended for steeper orchards.

Essential equipment includes:

- a permanent watering system such as under-tree mini-sprinklers or twin row drippers
- a tractor large enough to operate spray equipment and narrow enough to fit through the orchard if growing trees on the trellised palmette system
- weedicide sprayer (knapsack, handgun or spray boom)
- power sprayer for pests and diseases (air blast sprayer preferred)— a smaller powered handgun sprayer can be used for small orchards (or for the first few years in larger orchards) but good spray coverage is difficult to achieve
- splatter sprayer for applying fruit fly bait sprays
- protective equipment for use when spraying
- slasher or mower
- trailer, carryall or utility for farm transport of fruit
- shed for storage of equipment
- chemical storage area
- workshop space and tools.

Optional equipment includes:

- fertiliser spreader
- mulch spreader
- pneumatic/hydraulic secateurs.

When fruit production commences, the following equipment is also required:

- harvesting equipment including picking poles or ladders and picking buckets or bins
- shed or undercover area with grading equipment (if packing own fruit)
- coldroom preferably with forced-air cooling facility (if packing own fruit)
- nets for protection against birds and fruit bats.

Small orchards may reduce capital costs by becoming part of a packing cooperative and by purchasing second-hand equipment.



Figure 6 Small picking unit manufactured by Queensland grower Shaun McGinnis

The labour you need

Two people can comfortably handle up to one hectare of persimmon trees without the need for permanent labour. As the crop is generally grown in conjunction with other enterprises, this enables time for other necessary farming activities.

However, casual labour will generally be required to assist with pruning, thinning, harvesting and packing during the peak of the season. Pruning can take up to 100 hours per hectare over a two-month period, fruit thinning up to 200 hours per hectare over a two-week period, and harvesting up to 800 hours per hectare (six picks over a four- to five-week period).

The number of casual workers required may vary from two to three for thinning, and up to seven or eight for harvesting and packing. Access to a central packing shed greatly reduces the need for on-farm labour for post-harvest treatment, grading and packing.

Other considerations

Harvesting and farm operations

Peak harvest time is February to May. Heavy manual labour is involved in almost every aspect of production. Particular care and training is needed to avoid injuries to workers and damage to fruit before and after harvest.

It is useful to record the cycle of tree growth, flowering and fruit production.

Major orchard operations include tree planting, fertilising, weed control, pest and disease monitoring, spraying, pruning, harvesting and packing. To be profitable, an integrated crop management approach is recommended. This requires willingness to either employ specialised consultants for pest monitoring or water management, or to learn these monitoring systems yourself.

Early maturing varieties of persimmon are very susceptible to fruit fly, and regular bait or cover sprays may be necessary from November to harvesting. Regular checking for other pests is needed to determine when control measures are necessary.

During peak harvesting, large quantities of fruit must be handled in a short period. This requires good organisational and labour management skills.

To keep the orchard at peak production with quality fruit, the orchard must be carefully managed through pruning and other cultural techniques. This requires special management skills.

Marketing

In a modern horticultural business, an understanding of marketing and a commitment to quality throughout the entire production and marketing system are essential. This involves regular communication with people in the market chain, and a willingness to work with other growers in cooperative marketing ventures.

To be successful, the orchard must be run as a business. This is a complex operation requiring many skills including business planning, bookkeeping, and maintaining farm records. As production and marketing technology changes, it will also help if you are prepared to experiment with and implement new ideas.

There are several options for marketing your fruit. They include:

- individual growers, grower groups or cooperatives selling direct to central produce markets in Australia's major cities
- direct selling to major city chain stores and fruit barns
- selling locally.

Traditionally, growers send their fruit to their preferred agent or agents for sale, but cooperatives and marketing groups have started so that growers can play a more active role in distributing and marketing their fruit.

Industry

Be active in local and national industry groups. This will keep you at the front-line of important industry developments and allow you to have some input into the strategic direction your industry is taking.

A decision-making guide for those contemplating growing sweet persimmons

What are the objectives that motivate you most strongly?

- lifestyle objectives
- economic objectives
- a combination of the two

Persimmons are not for you

What is your attitude to capital risk?

- very averse to risk
- take only well calculated risks
- willing to have a punt

Persimmons are not for you

How does the thought of periods of several weeks of sustained, very detailed work over long hours affect you?

- turns you off
- sounds just tolerable
- no concern at all

Persimmons are not for you

Would you describe your approach to work as being tidy and careful with the details?

- mostly not
- frequently
- almost always

Persimmons are not for you

How do you feel about having to take an active interest in marketing your crop?

- sounds like too much hassle
- tolerable
- excited

Persimmons are not for you

How do you feel about growing trees?

- take it or leave it
- excited

Persimmons are not for you

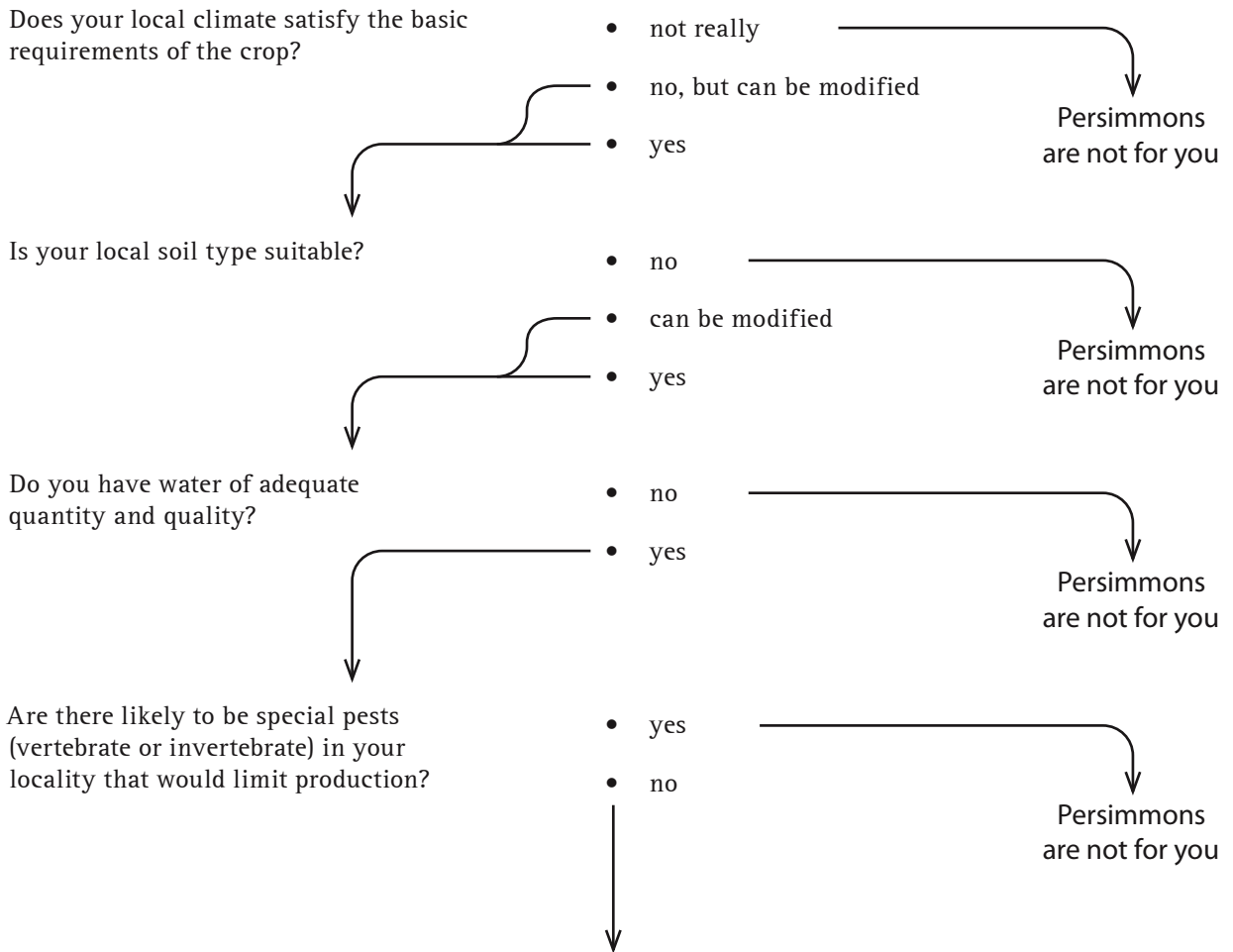
Would you describe yourself as a dedicated learner who loves chasing new information?

- no, prefer information ready prepared
- tolerable, but prefer not to
- definitely sounds like me

Persimmons are not for you

If you've reached here, then you've considered whether you are the right sort of person to get into growing persimmons and answered 'yes'!

But that's not all folks!
 You need to consider what physical resources you have available



If you've reached here that's great, because you have also got the basic physical resources covered. But that's not the end of the story! Getting started means taking on an orchard development project, and that brings up the question of how big a planting to start with.

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 READ ON