



SOUTHERN

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GRAINS RESEARCH
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CORPORATION

FIELD PEA

SECTION 1

INTRODUCTION

KEY POINTS | FIELD PEA TYPES | FIELD PEA HISTORY OF USE | WHY PLANT
FIELD PEA? | HOW FIELD PEA CAN BENEFIT THE FARMING OPERATION

Introduction

Key points

- There are five field pea types, based on seed coat or kernel colour, size and shape.
- Most (70–90%) field pea grown in Australia is for human consumption.
- More than 90% of Australian field pea grown are dun type, with 85% of these now a 'Kaspa' type.
- Two types of plant growth habit: conventional trailing types and semi-leafless types with thicker stems and leaves modified into tendrils to produce better standing ability.
- Field pea has a role in whole farming systems and crop rotations, as a cash crop, in weed control, in soil nitrogen fixation and for a disease break.

1.1 Field pea types

Major field pea (*Pisum sativum*) types are based on seed coat or kernel (cotyledon) colour, size and shape. Varieties range in growth habit from trailing to erect at maturity. Trailing types can be difficult to harvest but the semi-leafless forms, with leaves modified into tendrils, can have a better standing ability, aiding harvestability. Field pea varieties grown in Australia can be divided into five groups:

- **Dun:** greenish-brown (dun) coloured seed with yellow cotyledons. Traditionally dimpled, but rounded types exist now. Used for human consumption and stockfeed.
- **White:** cream-coloured seed with yellow cotyledons and rounded seed. Large whites are used for human consumption (split and flour).
- **Maple:** brown, smooth or dimpled, mottled or speckled seed with yellow cotyledons. Used for stockfeed and birdfeed.
- **Blue:** translucent seed coat, green cotyledons, rounded seed. Used for human consumption. Seed shape and cotyledon colour suited to specialised uses such as canning.
- **Marrowfat:** very large wrinkled blue seed with green cotyledons used for canning.¹

The individual varieties have different coloured flowers ranging from all white to pink and white, to purple and pink.



Photo 1: White flowers of PBA Pearl[®], a semi-leafless field pea.

Photo: Emma Leonard 2016

¹ GRDC (2009) Field Peas: The Ute Guide, Southern region. GRDC <https://grdc.com.au/resources-and-publications/all-publications/publications/2009/04/field-peas-the-ute-guide>



Photo 2: *The purple flower of PBA Coogee^{db}, a conventional leaf-type field pea.*

Photo: Emma Leonard, 2016



Photo 3: *The white and pink flower of Kaspa^{db}, a semi-leafless field pea.*

Photo: Felicity Pritchard

1.2 Field pea history of use

Field pea (*Pisum sativum* L.) has been an important grain legume crop for millennia; seeds showing domesticated characteristics dating from at least 7,000 years ago have been found in archaeological sites in Turkey. The seed is used both as animal feed and for human consumption. It is closely related to the garden pea, the immature pods and seeds of which are used throughout the world as green vegetables.²

Australian field pea for human consumption is commonly used split for dahl, in pre-prepared soups, fermented foods and noodles, as a snack food, whole for green peas for pies, mushy peas and other dishes, and for sprouts.

Research, industry and breeding programs target market specifications for whole and split grain size, shape and colour, whole grain milling properties and grain canning qualities.

Australia produces mostly dun-type field pea (including 'Kaspa' types), with some minor production of blue and white types.

Field pea is grown in the winter cropping areas of Australia. The crop is sown late autumn to mid (late) winter and harvested in spring. The southern region (South Australia, Victoria and Tasmania) grows

² | Pritchard (2015) Growing field pea. Department of Agriculture and Food, Western Australia, <https://agric.wa.gov.au/n/1755>

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161,000 hectares and 204,000 tonnes (five-year average to 2016-17).³ NSW planted 50,000 ha and produced 68,000 tonnes during the same period.

Most field pea are grown for grain, however, some varieties are also being used for green/brown manure, forage or hay.⁴

The high-quality seed is exported for human consumption in Asia and the sub-continent. Between 2010 and 2014 about 60% of pulses produced in Australia were exported, the majority used for human consumption.⁵ Field pea comprises 10–15% of the annual Australian pulse crop, with about 55% exported.⁶

The Australian Export Grains Innovation Centre (AEGIC) estimated a total of 150,000 tonnes of field pea, valued at \$72 million, was exported to South-East Asian markets for human consumption (average over 4 years up to 2015), see Figure 1.⁷

Australia is the major exporter of dun-type peas. Canada and France dominate world export markets and produce mainly white peas. These specialist-type peas are not grown widely in Australia.⁸



Figure 1: Major export markets for Australian field pea.

Source: AEGIC, <http://aegic.org.au/wp-content/uploads/2016/08/Major-markets-for-Australian-field-peas.pdf>

1.3 Why plant field pea?

Field pea offers flexibility and provides many benefit to growers. The crop can be grown for grain, used as a green or brown manure crop, made into hay or silage, or even grazed, depending on seasonal conditions and market prospects.⁹

Field pea has a role in a well-considered rotation. They are a cash crop in their own right and also a valuable part of the whole farming system, especially for weed control, soil nitrogen fixation and for disease break. Field pea benefit from stubble retention for erosion protection and moisture retention, giving the crop structural support for the plant to climb on and greater standability at harvest. Seeding

³ ABARE (2017) Australian Crop Report, No. 183, September 2017, http://data.daff.gov.au/data/warehouse/aucrpd9abcc003/aucrpd9aba_20170912_vGQh0/AustCropRpt20170912_v1.0.0.pdf

⁴ Pulse Australia (2010) Northern Region Field Pea Management Guide, https://sydney.edu.au/agriculture/documents/pbi/pbi_region_north_field_pea_management_guide.pdf

⁵ AEGIC (2016) Pulses, <http://aegic.org.au/about/australian-grains/pulses/>

⁶ AEGIC (2016) Australian Grain Note: Pulses, <http://aegic.org.au/wp-content/uploads/2016/08/AEGIC-Pulses.pdf>

⁷ AEGIC (2016) Major markets for Australian field peas, <http://aegic.org.au/major-markets-for-australian-field-peas/>

⁸ I Pritchard (2015) Growing field pea. Department of Agriculture and Food, Western Australia, <https://agric.wa.gov.au/n/1755>

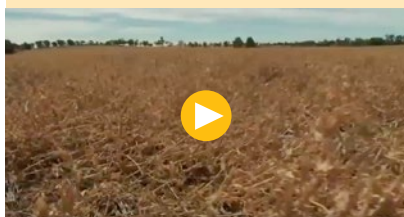
⁹ Pulse Australia (2010) Northern Region Field Pea Management Guide, https://sydney.edu.au/agriculture/documents/pbi/pbi_region_north_field_pea_management_guide.pdf

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VIDEO

Watch Video GCTV 9: Southern Pulse for the benefits of growing field pea
<https://youtu.be/ZfbW40oPOSI>



machinery used in no-till or minimum-tillage systems can handle stubble retention to allow pulse crops to be sown after a cereal.

The benefits of growing pulses include:

- crop diversity in a rotation, which is important for continuous cropping systems;
- handling, or delaying the onset of, herbicide-resistant weeds, by varying herbicide options and timings for weed control;
- providing a pest and disease break;
- spreading the timing of farm operations;
- spreading risk across commodities; and
- minimising the impact of increased nitrogen fertiliser and fuel costs.¹⁰

In addition to these benefits and in comparison to the other pulses, field pea has more post-emergent herbicide options and can be grown on a wider variety of soil types.¹¹

1.4 How field pea can benefit the farming operation

Field pea is the most adaptable and least demanding of all the pulse crops. It is suited to a wide range of soils, acid or alkaline pH, sodic soils, and both medium and low-rainfall environments see [Section 2 Planning and paddock preparation](#).¹² Field pea has unique farming system advantages because it can be sown later than most other annual crops. This allows weeds to germinate, with adequate time left for control by either mechanical means, or with non-selective herbicides, before sowing.

The early maturity of some field pea varieties also makes it ideally suited to crop-topping to prevent seedset of surviving in-crop weeds. The reduced reliance on selective herbicides provides a very useful tool in the battle against herbicide-resistant weeds. The late sowing and early harvest means the planting and harvest windows of the cropping program as a whole can be widened, allowing more efficient labour and machinery use.

Field pea provides substantial rotational benefits to subsequent cereal and oilseed crops. The three main benefits are: weed management, a disease break for root and foliar diseases and fixation of nitrogen in the soil.¹³

¹⁰ Pulse Australia (2016) Southern Faba & Broad Bean – Best Management Practices Training Course, module 1-2016

¹¹ Pulse Australia (2010) Northern Region Field Pea Management Guide, https://sydney.edu.au/agriculture/documents/pbi/pbi_region_north_field_pea_management_guide.pdf

¹² Pulse Australia (2010) Northern Region Field Pea Management Guide, https://sydney.edu.au/agriculture/documents/pbi/pbi_region_north_field_pea_management_guide.pdf

¹³ I Pritchard (2015) Growing field pea. Department of Agriculture and Food, Western Australia, <https://agric.wa.gov.au/n/1755>