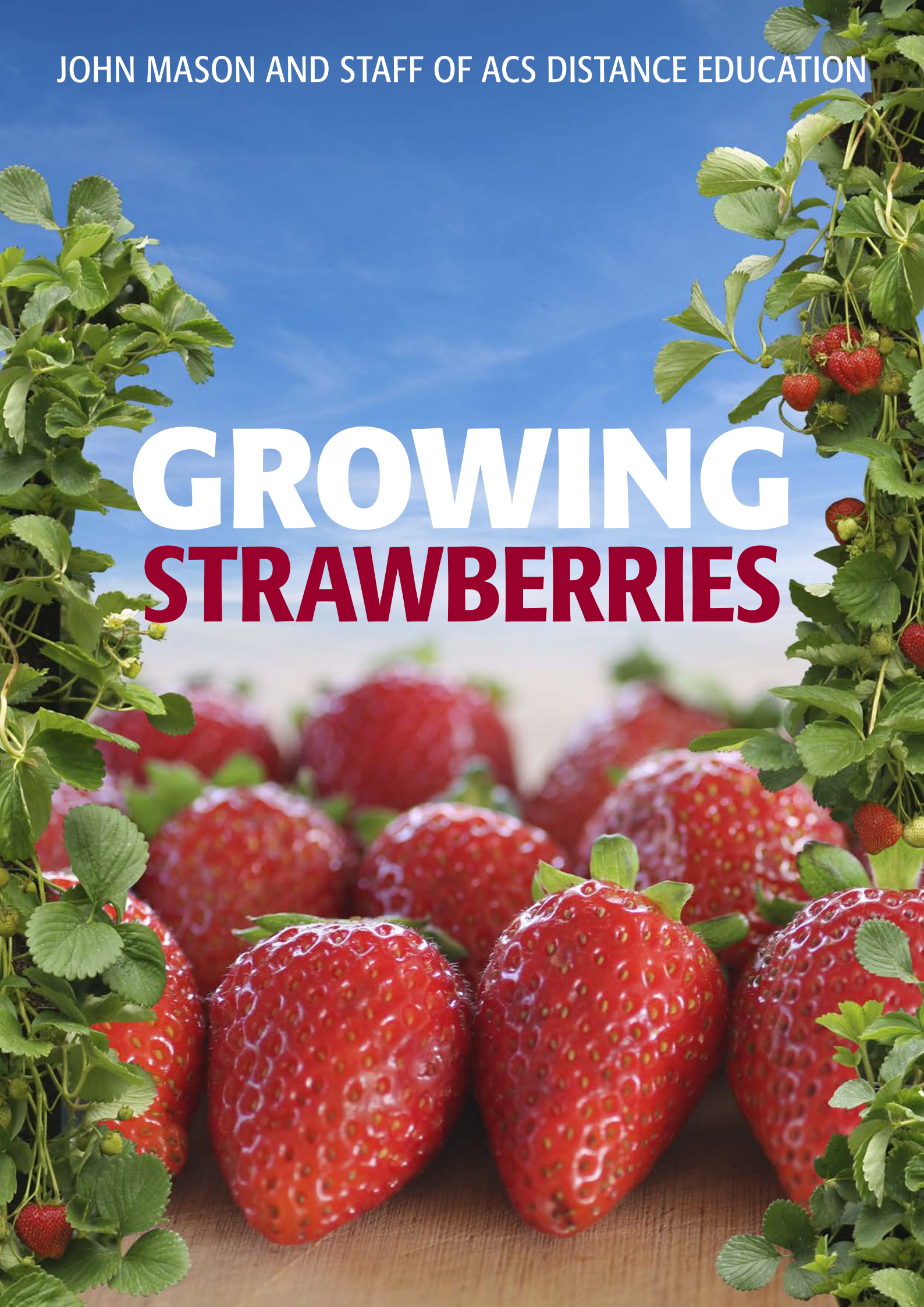


JOHN MASON AND STAFF OF ACS DISTANCE EDUCATION

GROWING STRAWBERRIES



CONTENTS

Credits	5
CHAPTER 1 INTRODUCTION: OVERVIEW, HISTORY, BOTANY AND TAXONOMY	6
The strawberry.....	6
History.....	7
Botany.....	8
Genetics.....	9
Species.....	10
Types of strawberry plants	13
Day neutral strawberry varieties.....	14
Short day strawberry varieties	14
Long day varieties.....	14
CHAPTER 2 CULTURE	15
Climate.....	15
Pollination.....	16
Soils and fertiliser.....	16
Planting.....	17
Buying plants.....	17
Spacing plants and planting.....	17
Plant care.....	18
Mulch.....	18
Removing runners.....	18
Pruning.....	18
Replacing old plants.....	19
Netting.....	21
Propagation.....	22
CHAPTER 3 WAYS OF GROWING STRAWBERRIES, HARVESTING AND MARKETING TECHNIQUES	23
Growing strawberries organically.....	23
Aspect.....	23
Soils.....	24
Organic cultivation in beds/rows.....	24
Organic cultivation in containers.....	26
Organic plant protection.....	26

Growing strawberries in containers.....	27
Greenhouse growing.....	32
Hydroponics	33
Harvesting strawberries.....	35
Hand harvesting.....	35
Harvesting large scale growers.....	36
Marketing.....	38
CHAPTER 4 MANAGING PESTS, DISEASES AND OTHER PROBLEMS ..	41
Potential problems.....	41
Pests.....	42
Aphids.....	42
Beetles.....	42
Bugs.....	43
Caterpillars.....	44
Mites.....	44
Nematodes (eelworms)	45
Slugs.....	45
Weevils.....	46
Diseases.....	47
Fungal diseases.....	47
Bacterial diseases.....	52
Viral diseases.....	53
CHAPTER 5 CULTIVARS	55
Cultivars.....	56
Comparing some cultivars.....	56
CHAPTER 6 USING STRAWBERRIES	61
Nutritional value of strawberries.....	62
Preserving strawberries.....	63
Freezing.....	63
Bottling.....	64
Drying.....	65
Recipes.....	66
Strawberry jam.....	66
Strawberry fruit punch	67
Strawberry mocktail	67
Summer strawberry salad	68

Strawberry cheesecake.....	69
Strawberry jelly	71
Strawberry coulis.....	71
Other ways to use strawberries.....	71
For skin.....	71
For hair.....	72
Ornamental plant	72
Strawberry oils.....	72
APPENDIX	73
Distance learning and online courses.....	73
E-books by John Mason and ACS staff.....	74
Printed books by John Mason	75
Useful contacts.....	76
ACS global partners.....	76
Social media.....	76

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CHAPTER 1 INTRODUCTION: OVERVIEW, HISTORY, BOTANY AND TAXONOMY

THE STRAWBERRY

Strawberries can be grown in a wide range of climates ranging from temperate climates to cooler positions in tropical areas; and are well suited to growing as a greenhouse crop anywhere if temperature conditions are controlled.

They are a significant large crop in many countries and a popular crop for home gardeners the world over. More than 3.5 million tonnes of strawberries were produced in 75 countries in

2005 and by 2010 the world's top 10 producers harvested almost 3 million metric tonnes, this extended to global production of over 4.5 million tonnes by 2012; a growth of almost 13% in 5 years. Although the United States, Turkey, Spain, Mexico the Netherlands, other countries are steadily increasing their production with Greece and Egypt increasing their production level by over 30% between 2007 and 2014, Chile too is an emerging and increasing producer.



History

The strawberry has been a popular fruit for thousands of years. Archaeologists have found strawberry seeds at Mesolithic, Neolithic, and Iron Age sites, indicating that early man ate strawberries. The wild strawberry *Fragaria vesca* was gathered by Stone Age man in Europe, its berries are much smaller than the strawberries cultivated today, however their flavour was exquisite.

The name 'Strawberry' is believed to have come from the fact that strawberries were cultivated on a bed of straw. When the berries were harvested they were sometimes strung on a blade of straw and sold as a 'straw of berries'. Another theory of the origin of the name strawberry came from the fact that the strawberry plant produces runners that spread and its berries were strewn about the ground 'strewn-berries'.

The strawberries earliest mention in English is in a Saxon plant list of the 10th Century. Herbalists record it being grown in medieval European gardens, for ornamental and medicinal reasons as much as for its fresh fruit. Its roots and leaves were believed to be good for diarrhoea and its fresh fruits were employed as toothpaste to clean up discoloured teeth and a balm for sun burn. Medieval stone masons carved strawberry designs on altars and around the tops of pillars in churches and cathedrals to symbolize perfection and righteousness.

The strawberry is native to many regions right across the world. The species *Fragaria virginiana* is native to North America, however was taken across to

New World France in 1624. *Fragaria chiloensis* is native to Chile it was taken to France in 1712, where both species were grown side by side in European gardens. It was here that the two species crossed and created *Fragaria ananassa* the species that we know as gardeners today. In the late 1700's the new garden strawberry *Fragaria ananassa* made its way back to America, where strawberry production began.

Early travellers in America recorded that strawberries grew extremely thickly in virgin plains; sadly the plains are now monoculture corn-lands. The Indians sometimes called strawberries 'Wuttahimneash' meaning heart-seed berry. Indians used these strawberries for bread and drink making and may even have gardened those strawberries, propagating from runners and creating raisins or wine. Today strawberries still grow in open woodland and hilly ground throughout North America. Early settlers picked wild strawberries and grew them in their gardens. The USA has gone on to become the world's largest strawberry producer – producing approximately 1.4 million tonnes in 2012.

The strawberry (known as the Chile strawberry i.e. *A. chiloensis*) was introduced into Britain in 1729 – but the variety proved almost worthless as was soon discarded. It wasn't until 1810 that new varieties started to emerge and up to 1830, five or so new varieties were bred. It wasn't long after this that the 'British Queen' variety was bred and it went on to become the most popular variety of its time both in the UK, Europe and America; more research and varieties were introduced until we have the wide range of strawberries varieties we are familiar with now. In 2014 the UK

produced 76,000 metric tonnes most of which is sold domestically.

Strawberries have been grown in the Dandenong Ranges, Victoria, Australia since the early 1900's. Unfortunately in 1956 a virus damaged most of the strawberry varieties grown at that time – this gave rise, in the 1960's, to breeding programs specifically introduced to produce virus-resistant plants.

Black polythene sheeting was also introduced to reduce weed problems, increase bearing and also meant that strawberries ripened two weeks earlier than before. This type of production also allowed strawberry growing in other cooler regions.

Australia has over 600 growers, producing 69,000 tonnes of strawberries (in 2012).

Botany

Expert references are variable as to how many different strawberry species exist. The RHS Encyclopaedia of Garden Plants suggests 12 species. Hortus Third also lists 12 species. Other references often refer to around 20 species, and some references many more.

Fragaria species are hardy to half-hardy perennial fruit-bearing, ornamental trailing plants that can live from 3 to more years. The plant produces long rooting runners (stolons) during the 'long day' conditions of summer but are otherwise stemless; the leaves are round to oblong, compound (made up of 3 leaflets - referred to as trifoliate) and have stipules (small leaf parts) joined

to the base of the petiole (leaf stalk). Leaflets are coarsely serrate with a thick cuticle layer.

The strawberry plant has a 'crown' (short thickened modified stem) which forms roots underneath at its base and from which a central upper growing point produces leaf and flower buds early in spring. The leaves arise from and along the crown on petioles and are spirally arranged around the crown.

Branch crowns, identical to the main crown in structure, are formed in autumn (the formation of these crowns is reliant on short day length) and each of these produces its own flower cluster (this increases yield the following year).



Strawberry flowers have 5 petals