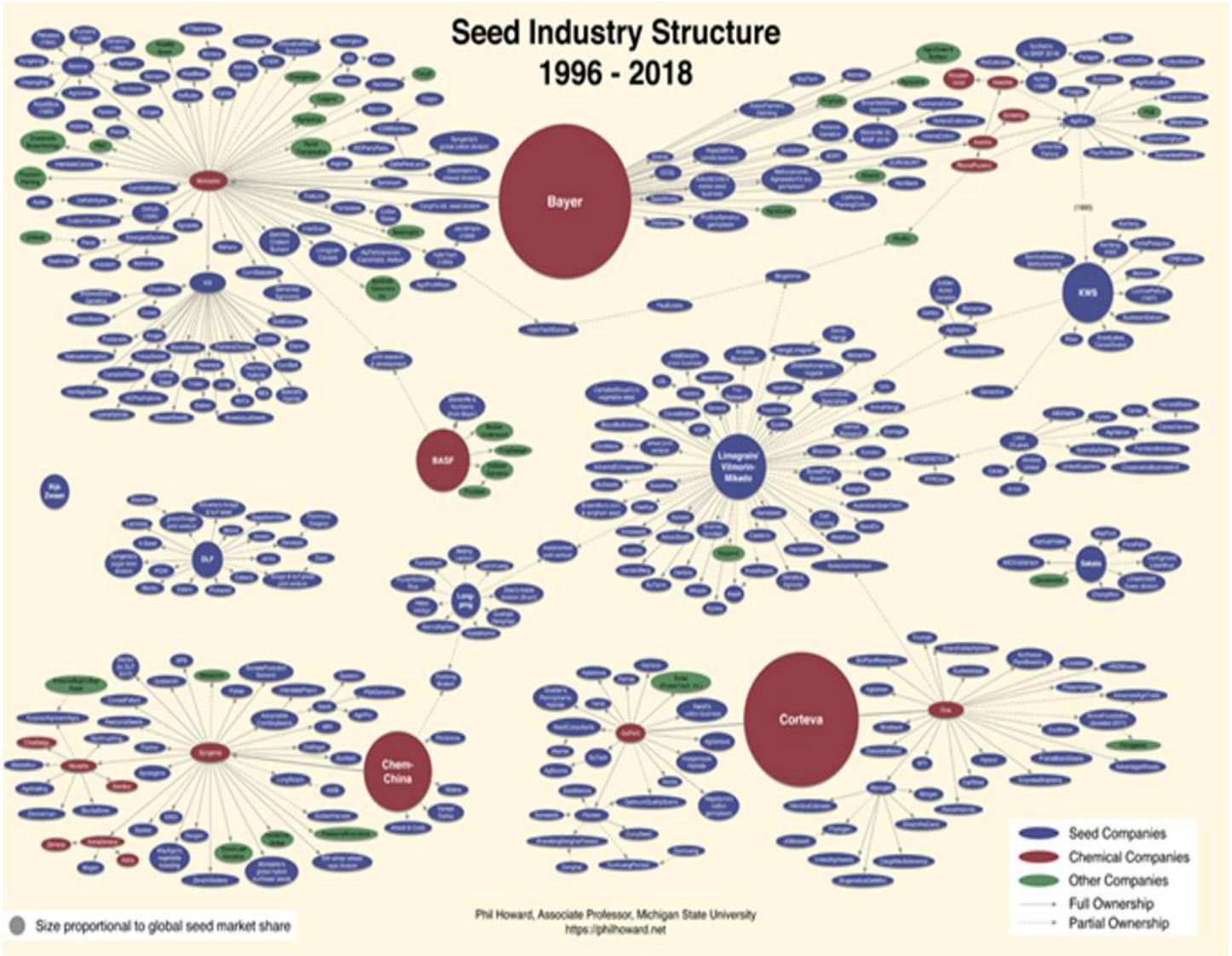
Introduction to seed production

Why bother?

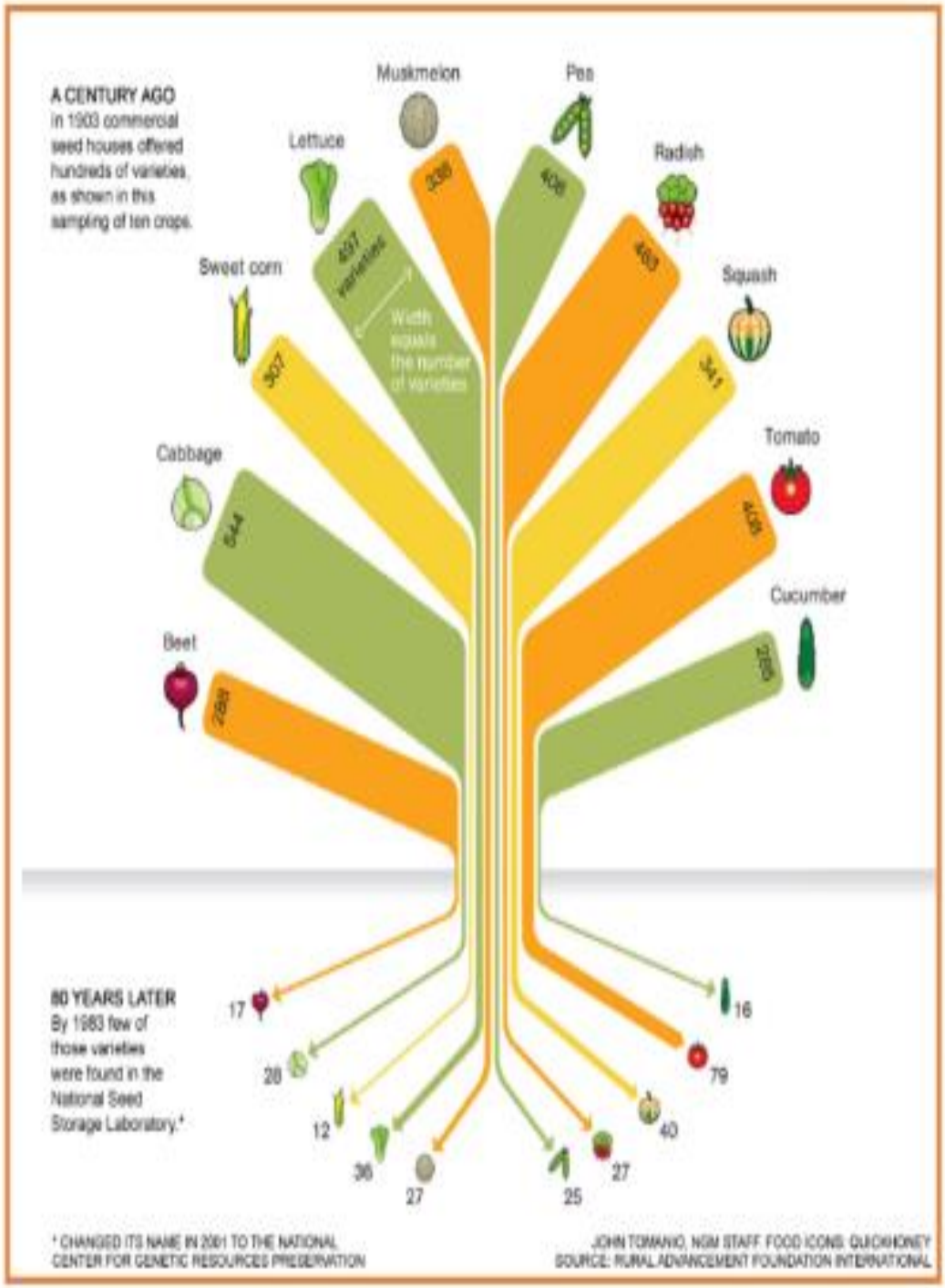

ORIENTAL GREENS
Tatsoi
Yukina Savoy
(Brassica rapa)
€1.50
D.T. BROWN
Mr. Fothergill's
CARROT
Autumn King 2
Kitchen GARDEN
www.kitchengarden.co.uk
Aubergine
PINSTRIPE
F1 HYBRID
Pak Choi
Green
Outstanding taste
SUFFOLK HERBS

Where do all our seeds come from?



Four seed companies control over 60% of the global seed trade

75% of crop biodiversity has been lost since 1900



Practical advantages of seed saving

- Saves money (or could even provide an income)
- Ensures supply of the varieties you want
- Varieties adapt to local conditions
- Seed is good quality and fresh
- Seeding plants add diversity
- Seeing a crop through its lifecycle is fascinating!

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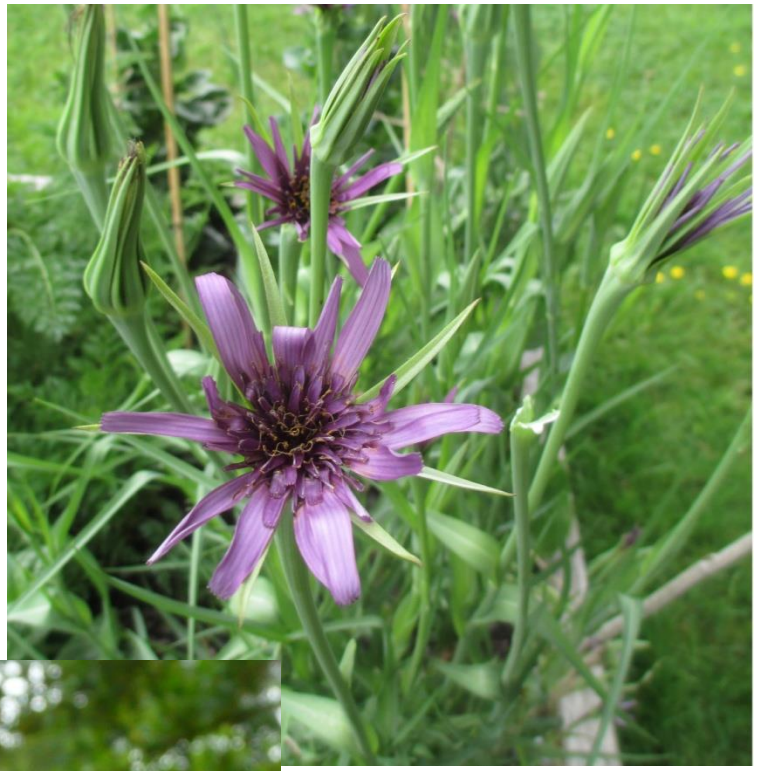
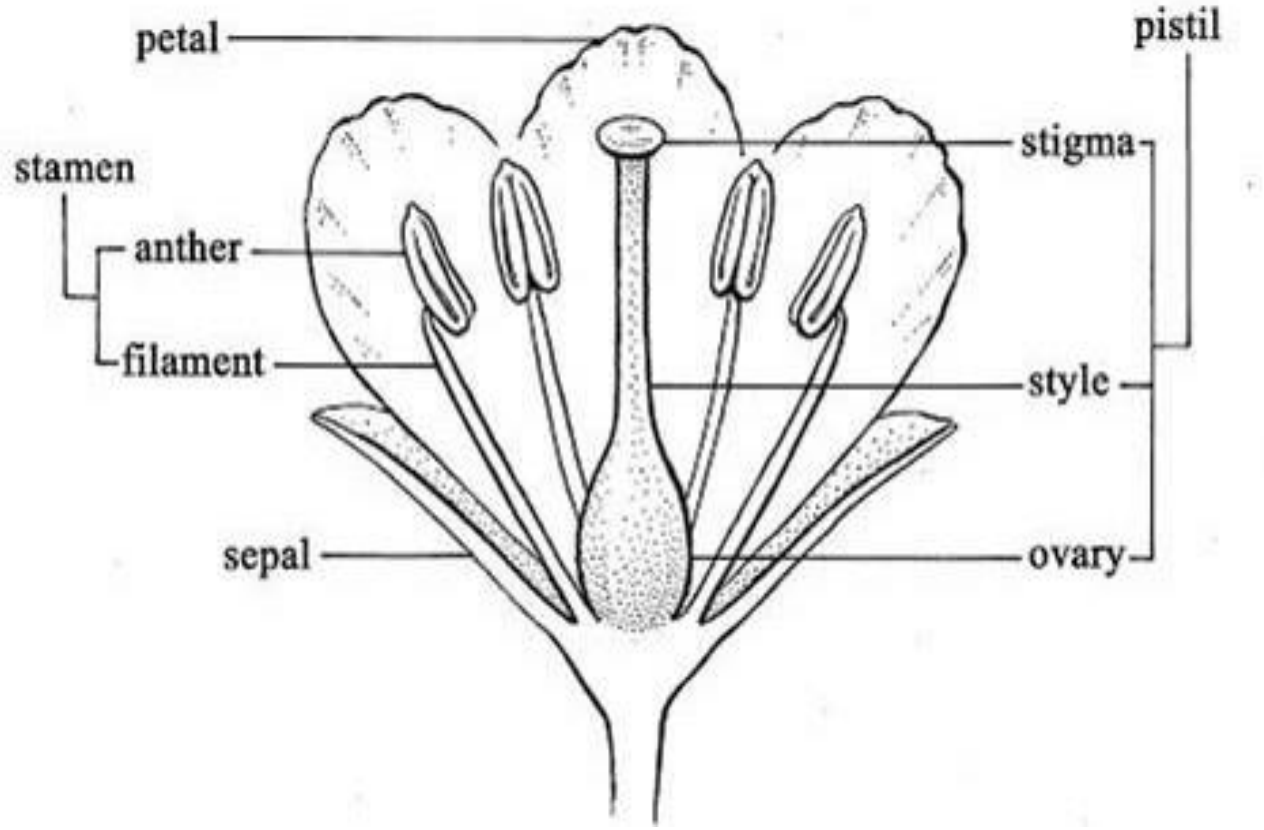


What you need to know about a variety to grow it for seed

- Its usual cultivation requirements i.e. How you would normally grow it to eat
- How it pollinates
- What species it is
- What it's lifecycle is
- What characteristics it should have

Pollination

Pollen has to be transferred to stigma (female) from anther (male) from a flower on the same OR A DIFFERENT plant



Both male and female parts carry genetic information which carried over in the seed

Most vege have flowers which contain both male and female parts

But not all.....

How is pollen transferred within or between flowers?

How is pollen transferred?

Movement of pollen from male anthers to female stigma can be by:

- Insects
- Wind
- Opening of flower/movement of plant

Self pollinators or ‘inbreeders’ – pollen transferred within the same flower

Cross-pollinators or ‘outbreeders’ – pollen likely to be transferred from a flower on another plant

Resulting seed may not give plants that are ‘true to type’

unwanted cross-pollination

Inbreeders Outbreeders

Mostly self pollinate ----------***Mostly cross-pollinate***

Peas Lettuce Tomatoes Squash Brassicas Sweetcorn

Peppers Umbellifers

What crops are easiest to save for seed?

Peas

French beans

Tomatoes (other than ‘currant’ tomatoes & F1s)

Baby-leaf salads – e.g. rocket, cress, coriander

Simple hardy annual and biennial flowers

A cross-pollinator can sometimes be easy too...

It depends whether there is a crop near enough to cross-pollinate with it.

- How near is ‘near enough’?
- Which plants would be in danger of cross-pollinating it?

How near is near enough?

‘Isolation distance’ depends on the crop and the site

When is cross-pollination possible?

Plant family e.g. Cucurbitaceae

↓

Genus e.g. *Cucumis*

↓

Species e.g. *Cucumis sativa*

↓

Variety e.g. *Cucumis sativa* ‘Marketmore’

ONLY PLANTS OF THE SAME **SPECIES** WILL CROSS

What crops will cross with each other?

Vegetable-species-reference-table-pdf.pdf

- **A ubergine** *Solanum melongena*
- **Beetroot** *Beta vulgaris* (NB sugar beet also *Beta vulgaris*)
- **Broad bean** *Vicia fava*
- **Broccoli** (purple sprouting, calabrese) *Brassica oleracea* Italica group
- **Cabbage** *Brassica oleracea* Capitata group
- **Carrot** *Daucus carota* subsp *sativus* (NB wild carrot also *Daucus carota*)
- **Cauliflower** *Brassica oleracea* Botrytis group
- **Chard** *Beta vulgaris*
- **Chinese cabbage** (*Brassica rapa* Pekinensis group)
- **Courgette** *Cucurbita pepo*
- **Cucumber** *Cucumis sativa*
- **French bean** *Phaseolus vulgaris*
- **Kale** *Brassica oleracea* Acephala group
- **Leek** *Allium porrum*
- **Lettuce** *Lactuca sativa*
- **Melon** *Cucumis melo*
- **Onion** *Allium cepa*
- **Parsnip** *Pastinaca sativa*
- **Sweet peppers and some chillies** *Capsicum annuum*
- **Pea** *Pisum sativum*
- **Pumpkin/winter squash** *Cucurbita pepo, Cucurbita maxima, Cucurbita mixta*
- **Radish** *Raphanus sativus*
- **Runner bean** *Phaseolus coccineus*
- **Shallots** *Allium cepa* Aggregatum group
  Spinach *Spinacia oleracea*
- **Sweetcorn** *Zea mays*
  Tomato *Lycopersicon esculentum, Lycopersicon pimpinellifolium*
- **Turnip** *Brassica rapa* Rapifera group (oil seed rape is also Brassica rapa)

peas

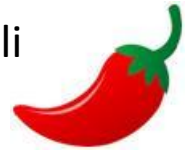
broad beans

kohl rabi

courgette

cabbage

chilli



broccoli

wild carrot

chard

leek

beetroot

kale

onion

pumpkin

pepper

runner bean

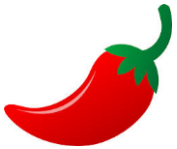
sugar beet

cauliflower

French bean

carrot

Capsicum annuum

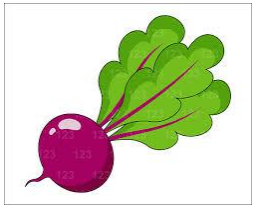


Capsicum annuum?

Cucurbita pepo

Cucurbita pepo **?**

Beta vulgaris



Daucus carota

Brassica oleracea

Seed crop cultivation

If you are planning to grow a seed crop, you need to know:

- Lifecycle - Is it an annual or biennial?
- How long does it need in the ground?
- How much space does it need?
- Does it need staking?

Life cycle - annual, biennial or perennial?

Annuals – grow, flower and seed in one year

Often need longer in the ground to produce a seed crop....

Extend the season....

Grow undercover....

.....but not always

Biennials - Produce flowers and seed in second season.

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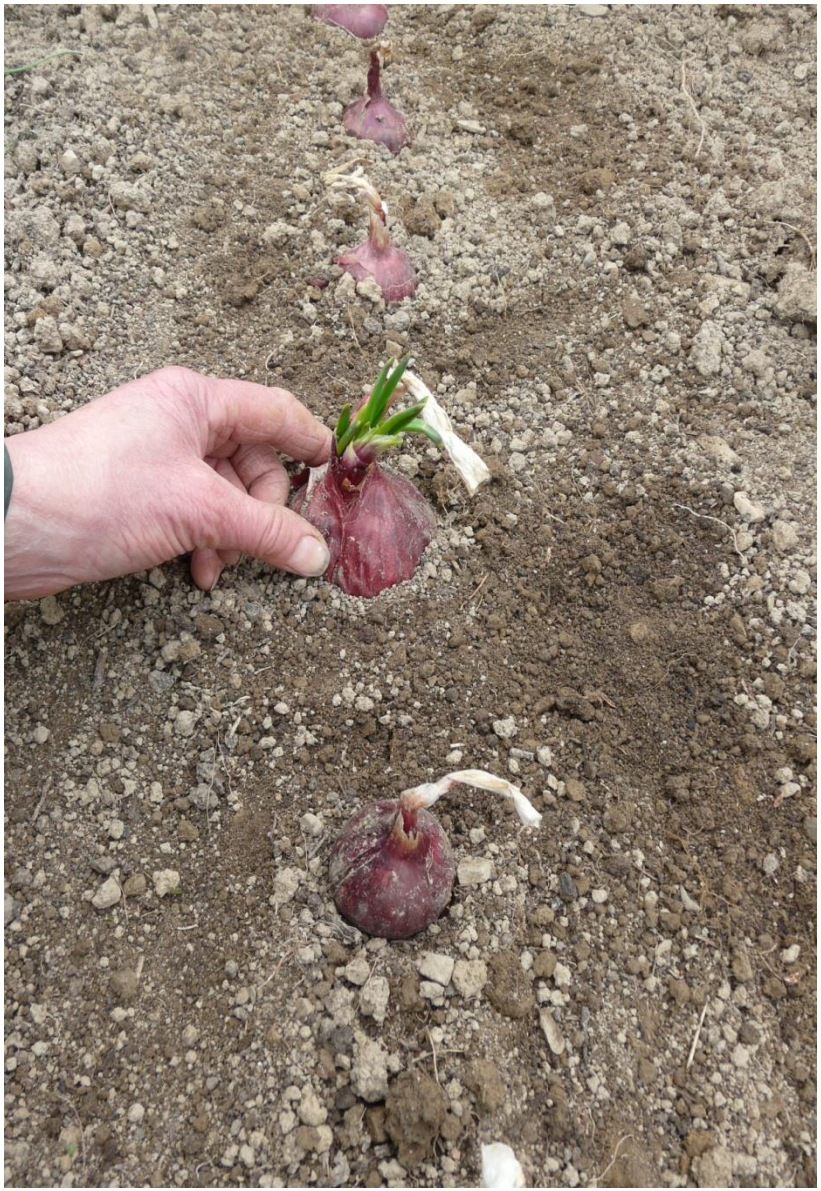
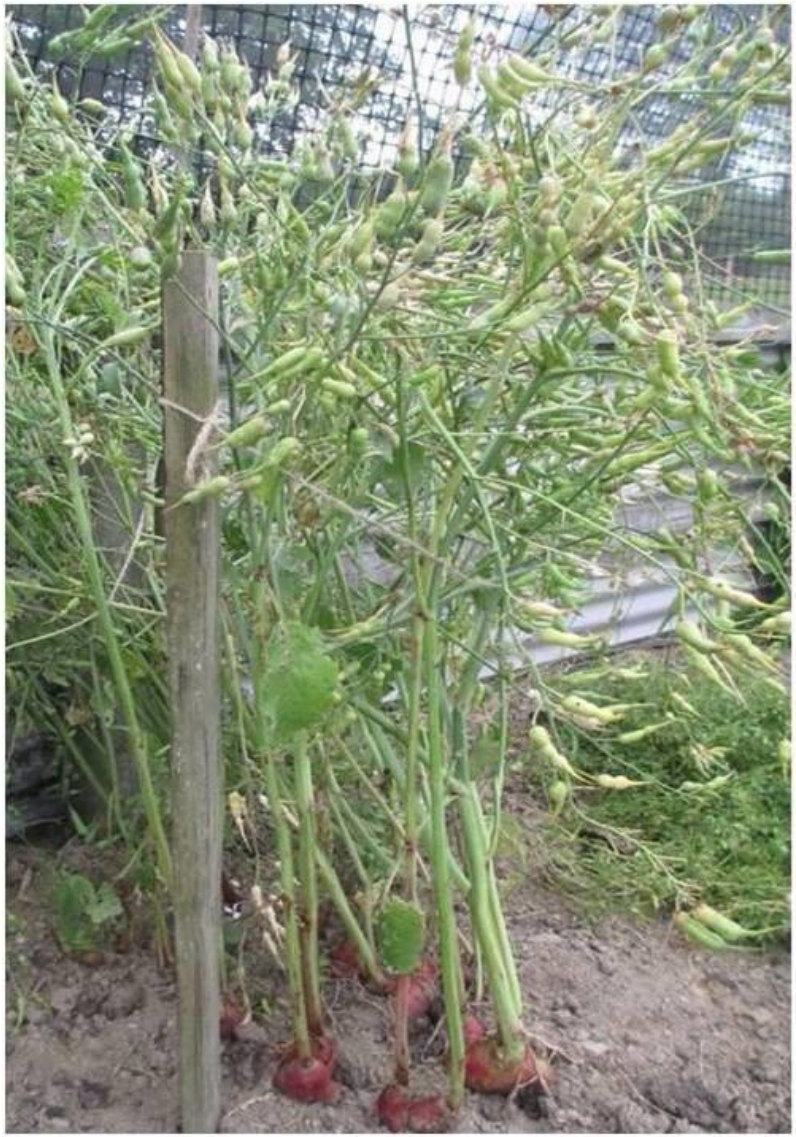
- Biennial crops overwintered in the ground or stored and replanted



Space and staking.....



Plant selection

Observe plants throughout their lifecycle and:

- Remove any diseased plants
- Remove any weak plants
- Remove plants which aren’t ‘true to type’:
  - observe them throughout their lifecycle
  - observe all parts of the plant

Cull any diseased plants

Cull weak plants and those not ‘true-to-type’

Save seed from enough plants to maintain genetic diversity

RECAP Pollination

If you are growing a crop for seed, you need to know:

- Is it a self-pollinator or cross-pollinator?
- What species is it? i.e. What might cross-pollinate it?
- What crops/weeds/agricultural crops are nearby?

RECAP Seed crop cultivation

To make your growing plan, you need to know:

- Is it an annual or perennial?
- How long is it the ground ?
- How tall/big does it get?
- What pests/diseases/variety characteristics to look for

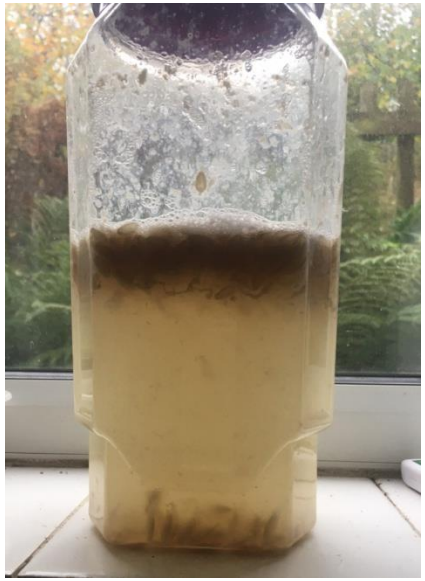
Planning a seed crop

Choose two seed crops – one from each of the following two groups - to put in an imaginary crop plan:

-  Peas  Lettuce  French beans
-  Kale  Onions  Carrots

- What do you need to know about these crops ?
- Why have you chosen these two for your site (or an imaginary site!) rather than the others?
- What problems might there be with them?

Harvesting and cleaning seed



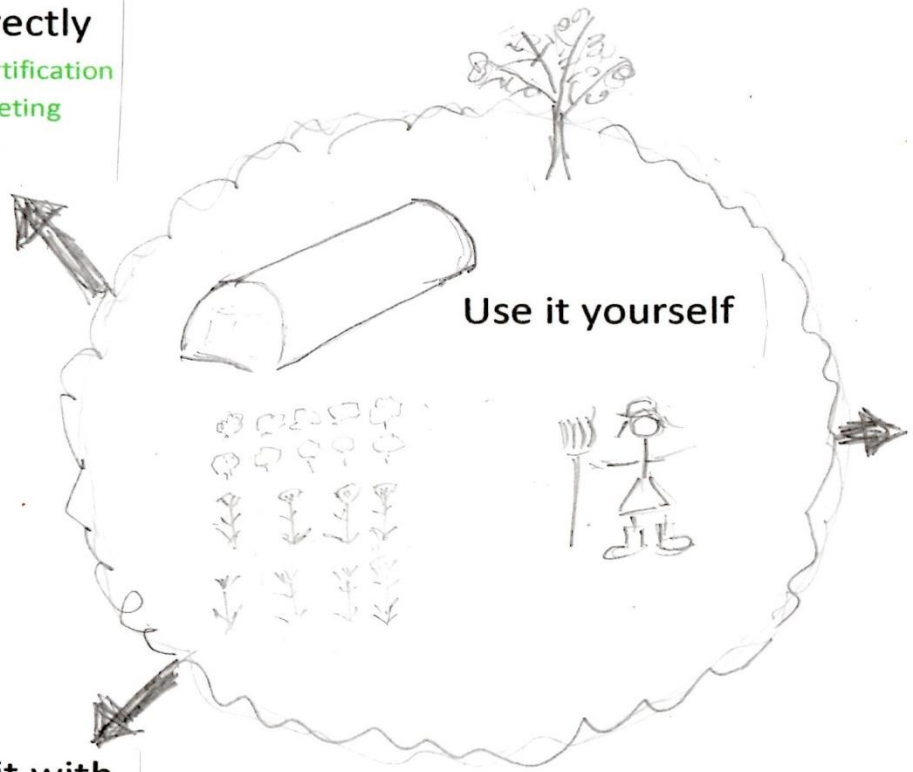
Further ‘seedy’ training and events

- Gaia Foundation Seed Sovereignty Programme
  www.seedsovereignty.info
- Vital Seeds https://vitalseeds.co.uk/
- Wales Seed Hub Hwb Hadau Cymru www.seedhub.wales

What are you going to do with the seed?

Market it directly

Need licence & certification
Extra costs in packeting
Sell seed for more



Sell it to a seed company

No legal requirements
Get help and advice
Guaranteed market
Get less for seed

Exchange it with other growers

Gain skills and support
but not much money