PROFITABLE FARMING
PRACTICAL CONSERVATION

What do I do?

The UK environmental schemes.

Creating and managing quality habitats.

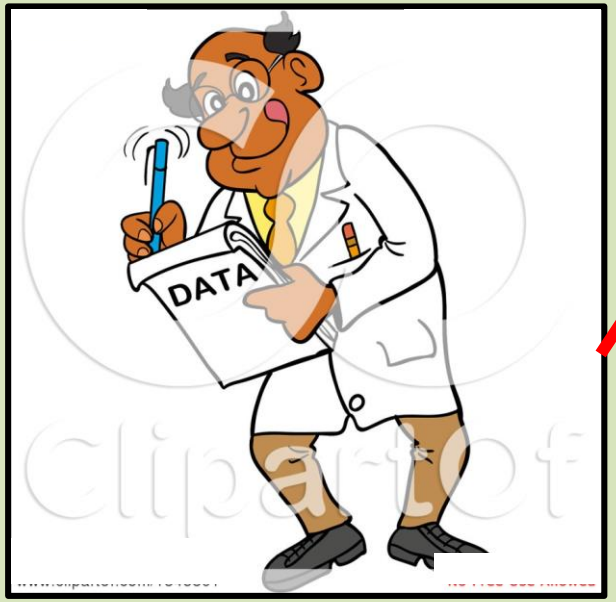
Looking to the UK future?

Turning environmental research into practical farm delivery

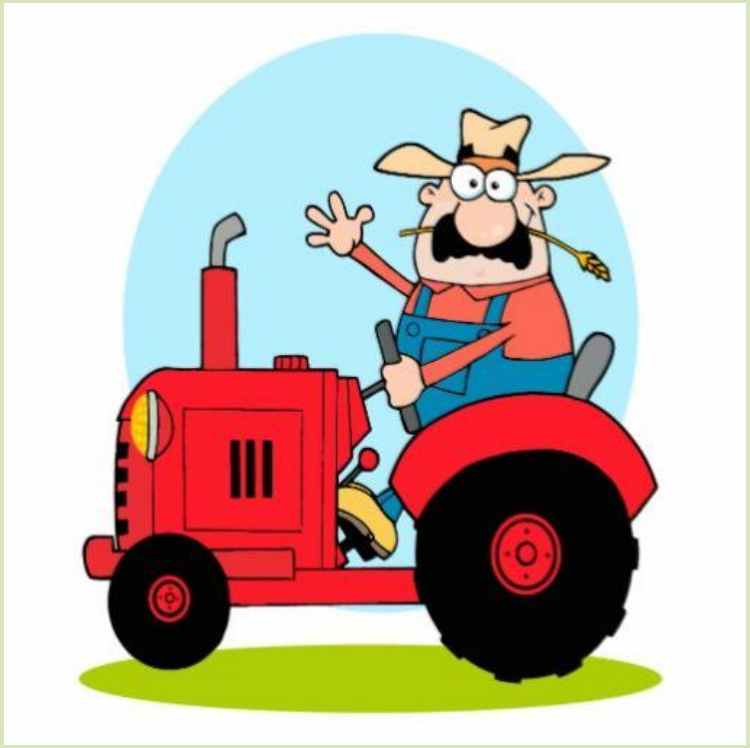
Assist in the design and management of a project

Train and encourage farmers to grow quality habitats

Scientist gather data



Turn the results into practical opportunities



Different challenges

2.5x greater	LAND MASS	
10m	POPULATION	60m
24 People/sq km	DENSITY	270 People/sq km
Supported	RURAL POPULATION	Less support
7.5% (6.4m ha)	FARMED LAND	70% (18.5m ha)
69%	FORESTRY	13%

PRIMARY ENVIRONMENTAL CONCERNS

Soil erosion	Habitat loss
water quality	water quality

30 years of UK environmental payments

1986 ESA's. Selected areas. The first time farmers were paid to retain areas of value.

2005 ELS. Open to all farmers. £30/ha x total area for delivering a range of habitats.

2005 HLS. A discretionary more demanding version of ELS.

2015 Countryside stewardship. Mid and higher tier. Discretionary entry based on the best submissions.

2017 3 year trial of payment by results. Higher payments for targeted delivery..

Now less money but still trying to improve quality delivery

16 YEARS KNOWLEDGE

Practical *science to successful farm delivery*

MANOR FARM 1999-03. The habitat and wildlife link.

BUZZ PROJECT 2001-06. The scientific proof

BIG BEE 2004-08. Targeted species increases.

HILLESDEN 2005-10. Habitat type, quality & quantity.

WADDESDEN 2012-15. Testing ecosystem services.

OP BUMBLEBEE 2005-08. 50% of P&N in ELS.

OP POLLINATOR 2009-13.European wildlife delivery.

APPLE POLLINATORS 2016-19.Increasing insect pollinators.

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NATURAL ENGLAND

Agrii

syngenta

Example of a Site Plan

Habitats:

A. **Crop, as rest of field**

B. **Tussocky mix**

C. **Flowery mix**

D. **Legume Mix**

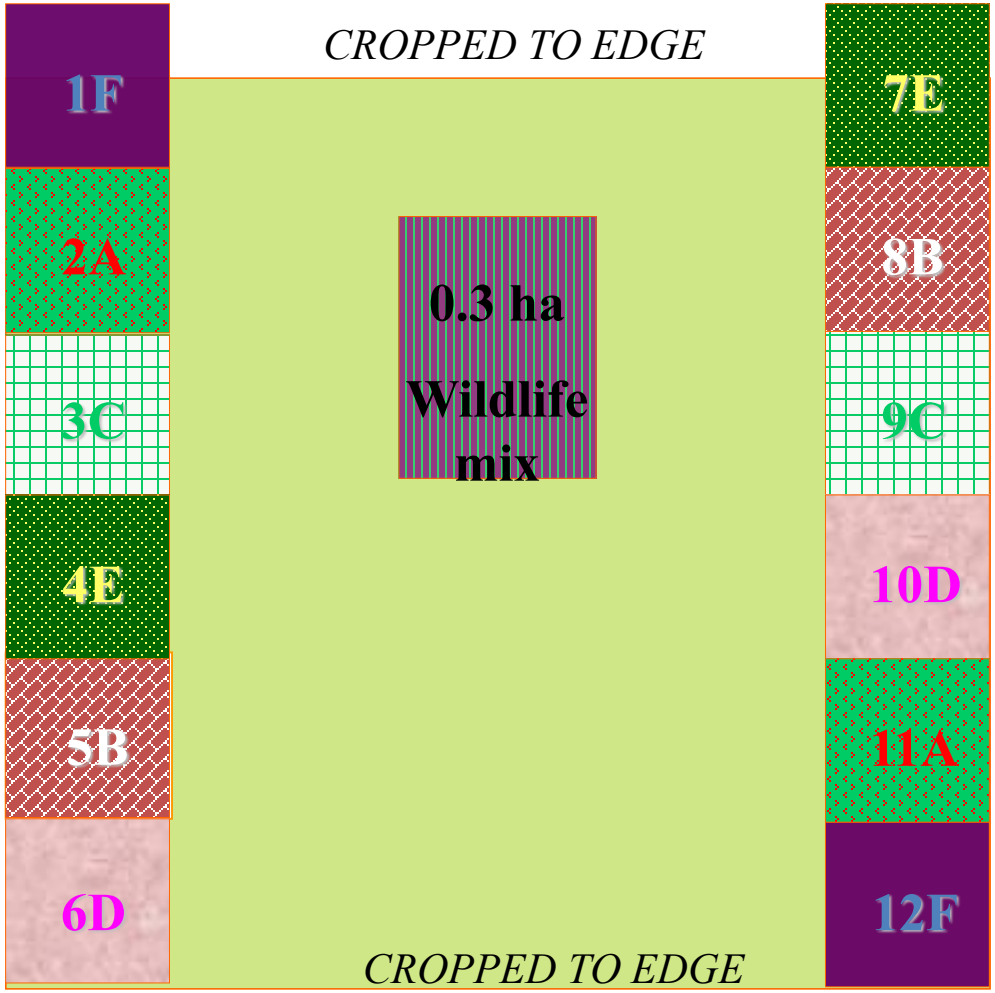
E. **Natural Regeneration**

F. **Conservation Headland**

2001-2006

Each plot 6 meters wide x 50 meters long

Randomisation of plots will vary from site to site



N

the buzz project

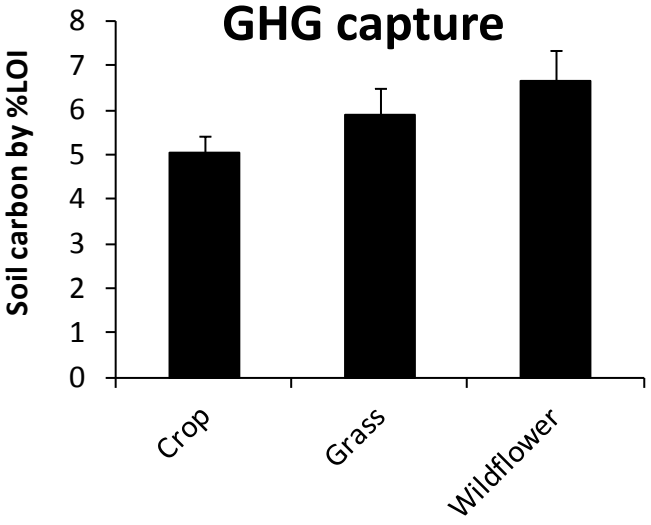
Creating farmland habitats

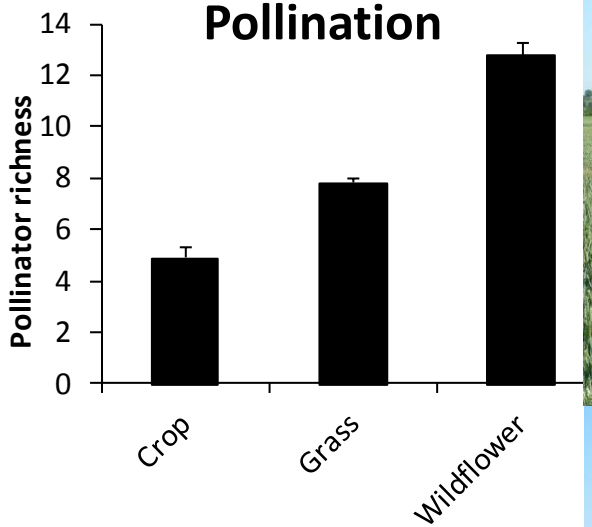
Summary of results 2002 to 2004

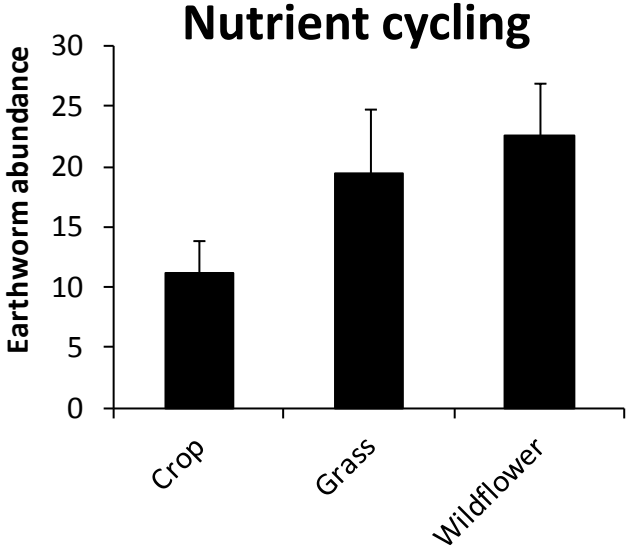
These results show the habitat increases over the crop to field edge (control)

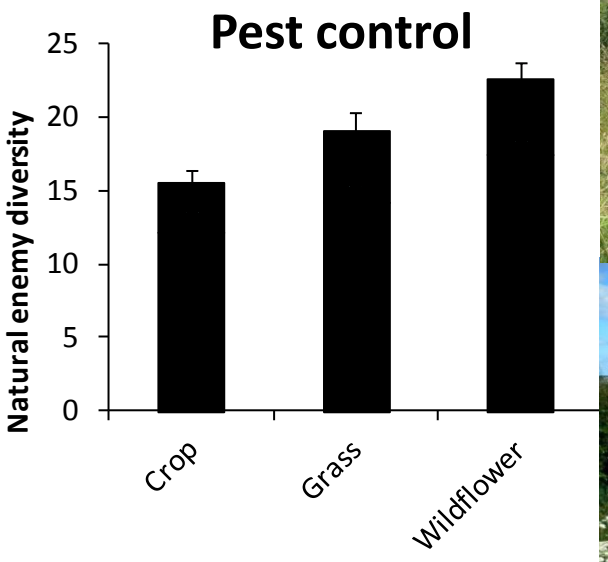
	2002		2003		2004	
Birds	644	40x	981	20x	724	14x
Bumblebees	1856	600x	4359	500x	2218	36x
Butterflies	769	7.5x	1414	12x	654	5x
Bugs*	1.5 mill	3x	5700	5x	4030	10x
Spiders*	1.0 mill	3x	6245	2x	5278	3.8x
Beetles*	1.5 mill	3x	5859	2x	8926	0.8x

More for your money: Multiple benefits from margins

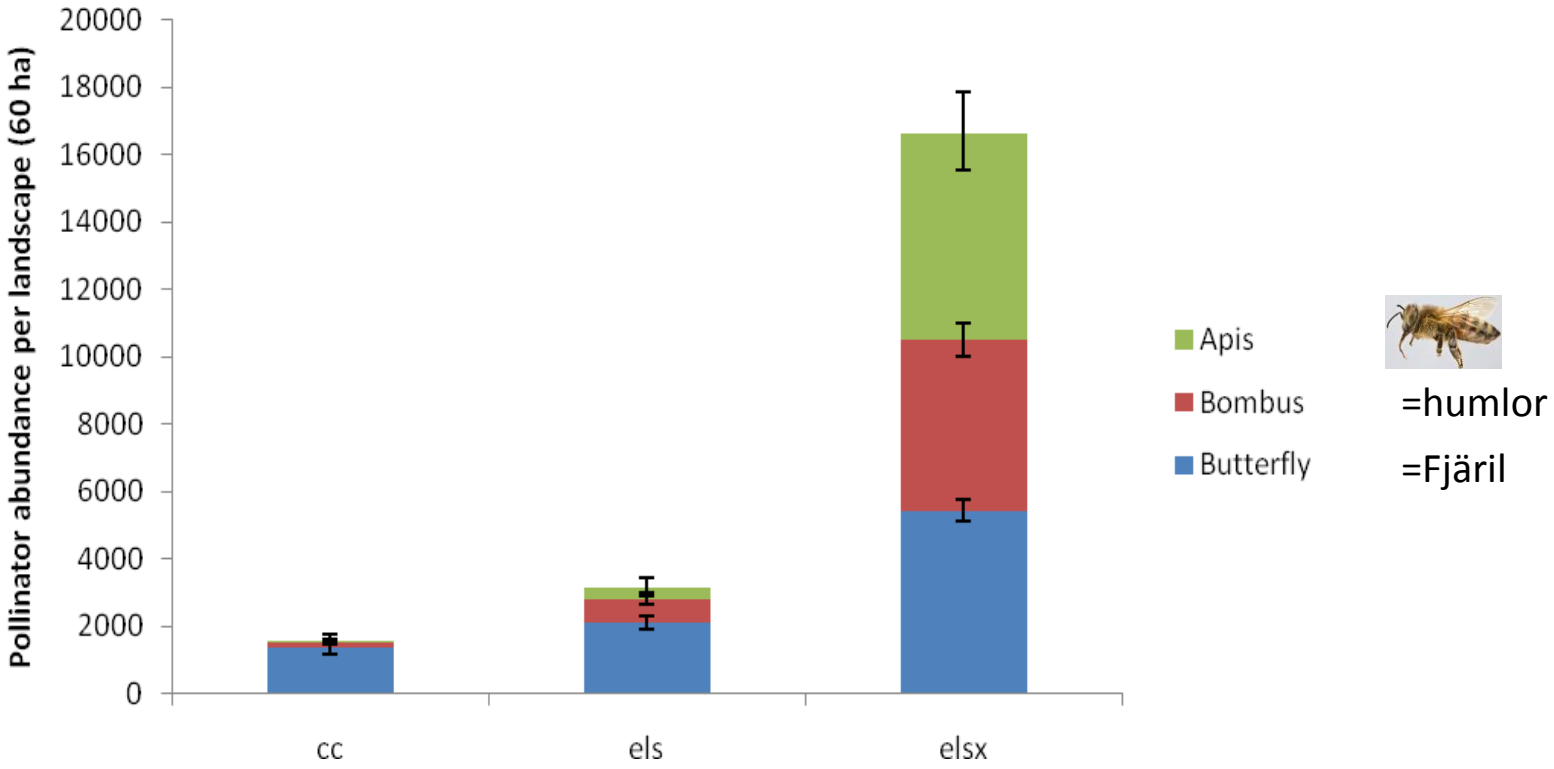






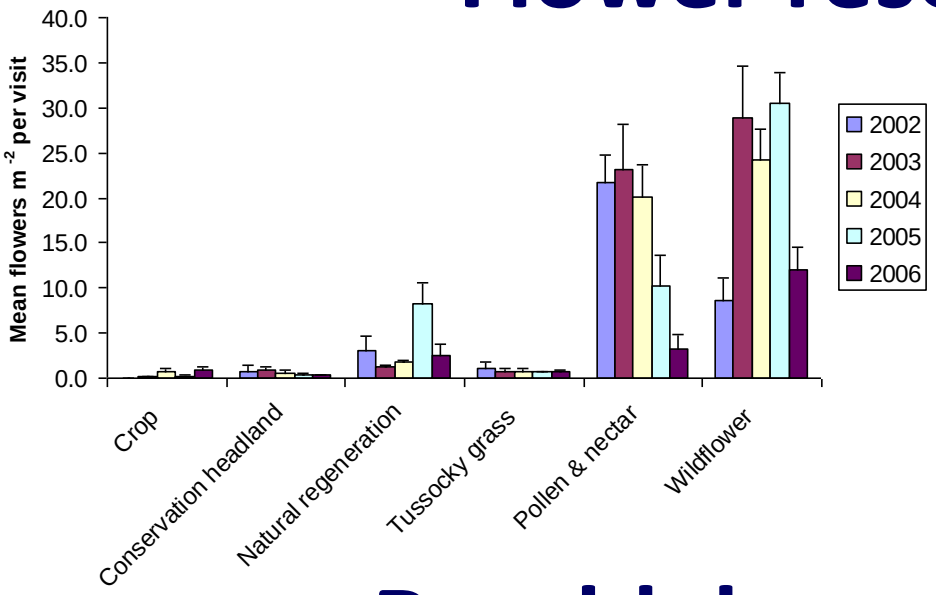


Hillesden project 2005-10
Pollinator abundance(transects)



Total pollinator abundance 2 and 10 times greater in the ELS and ELS Extra treatments respectively compared with Cross Compliance

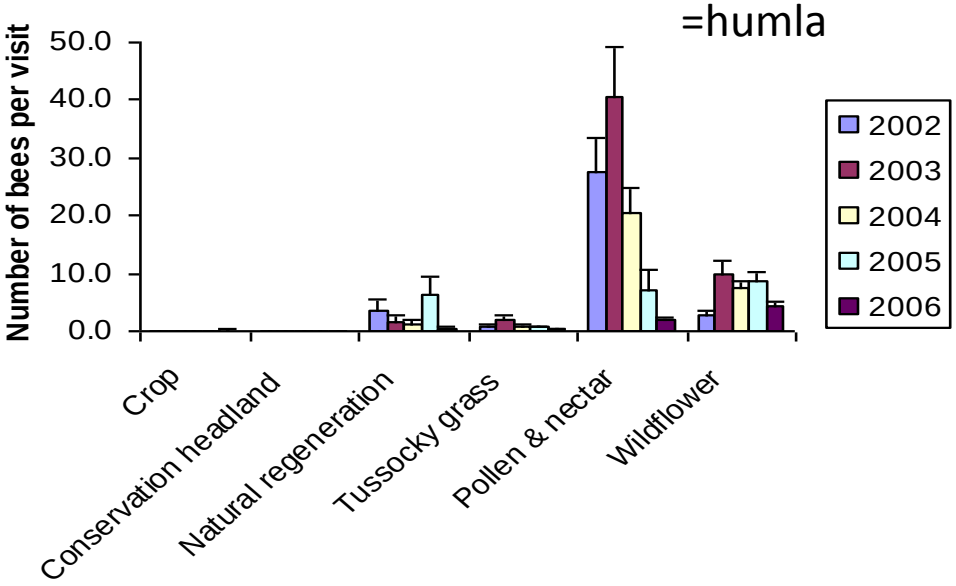
Flower resource



Most flowers in Wildflower followed by Pollen & nectar

Bumblebee abundance

=humla



Abundance significantly higher in Pollen & nectar but declines with time. Wildflower lasts longer

WHAT HAVE WE LEARNT?

Science has shown us delivery is possible.
Not enough of the right habitats sown.
Quality habitats deliver better results.
Like crops habitats need management
Training makes a big difference.

HAVE THE SCHEMES WORKED?

Vetenskapen har visat att det går att förändra.
Det finns inte tillräckligt mycket kvalitets-habitat sådda.
Kvalitativa habitat ger önskat resultat.
På samma sätt som grödor behöver skötas om så…
ger utbildning stor skillnad

Many farmers paid for taking land out of production not wildlife delivery.

=Lantbrukare får betalt för inte att producera, istället för att producera biodiversitet.

HABITAT QUALITY *" V"* QUANTITY

Habitat quality and variety are the key to biodiversity increase
Appropriate management is vital

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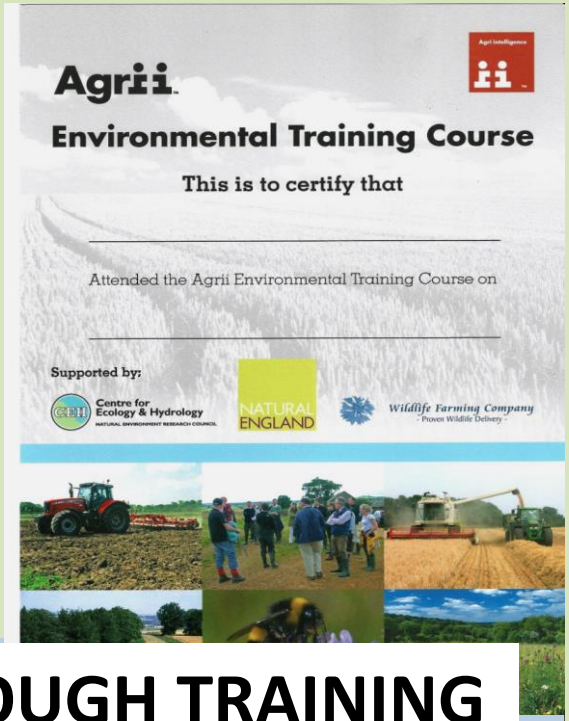

Agrii DELIVERING KNOWLEDGE THROUGH TRAINING

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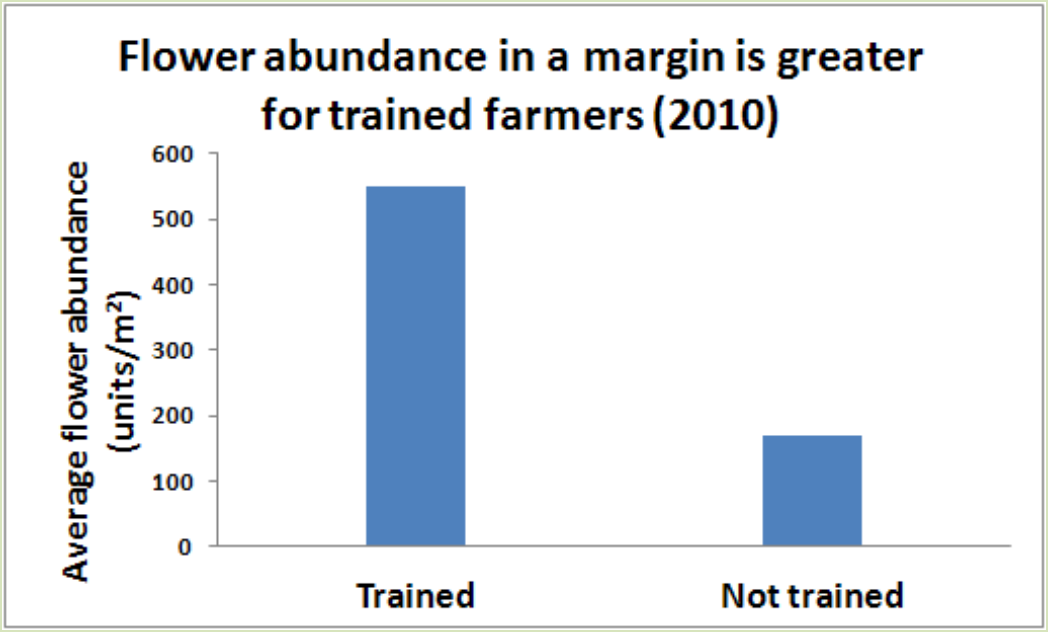
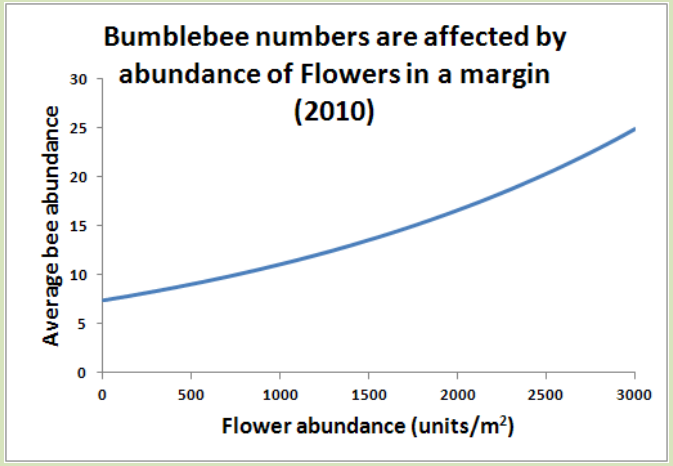
The quality of flower habitats was increased by farmer training

FarmCAT
Improving agri-environment schemes





- Other factors for flower abundance – shelter, higher summer temp
- Factors for bee abundance – flower abundance, region, weather during survey

RURAL ECONOMY AND LAND USE

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Remember it’s what you do with the land not the amount you take out

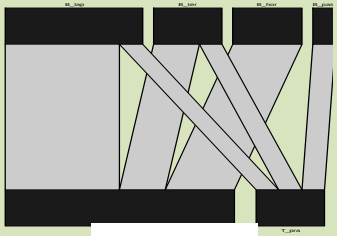
INTENSIVE WILDLIFE PRODUCTION IS THE LOGICAL WAY FORWARD

Take 3% land out of production for targeted Wildlife delivery

THE 3 BUILDING BLOCKS

VEGETATION SUCCESSION

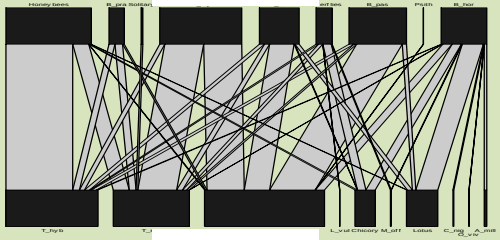
PLANTS



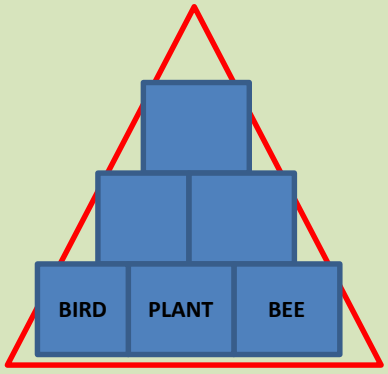
INSECTS

HETEROGENEITY
“Variety”

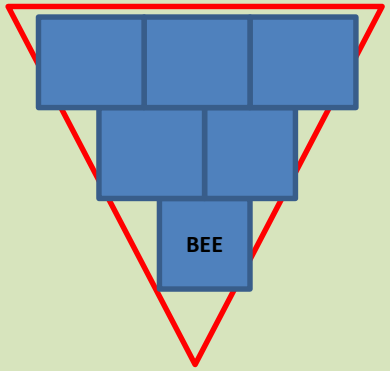
PLANTS



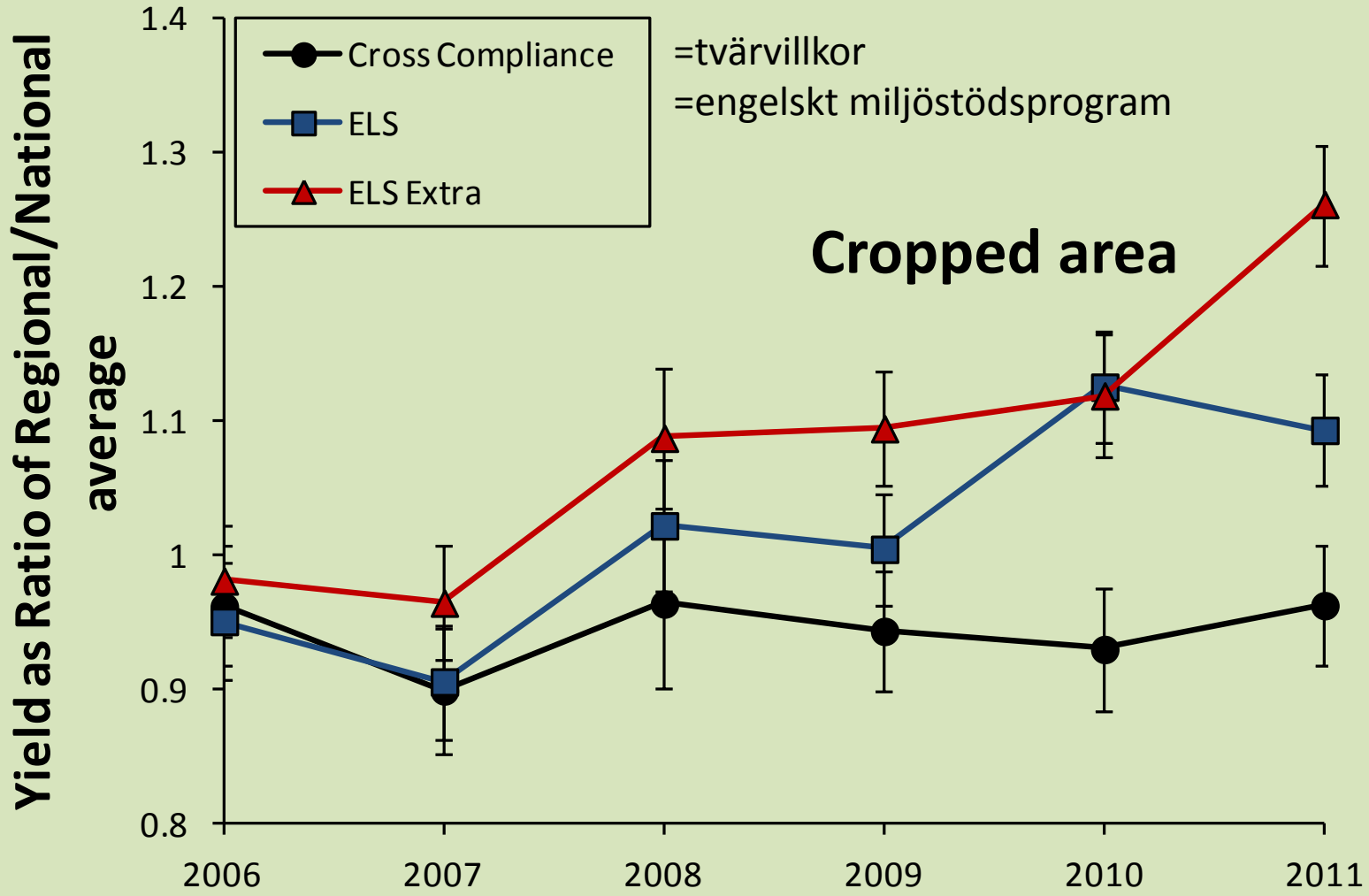
INSECTS



STABILITY
The more diverse the stronger is the system



HILLESDEN EXPT. Yield trend with time



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FLOWERS REDUCE BLACK GRASS

Winter wheat with
750 BG heads m2

2 years flowers then
back to winter wheat

GROWING FARMLAND WILDLIFE

Keep it simple don’t overload me with information

WILDLIFE NEEDS

HOME

FOOD

MATE

Delivering more wildlife and Staying in Business
"KEEP IT SIMPLE"

90% decline in biodiversity is due to habitat loss :

PUT THE HABITATS BACK

Farmland birds starve in the winter

FEED THEM

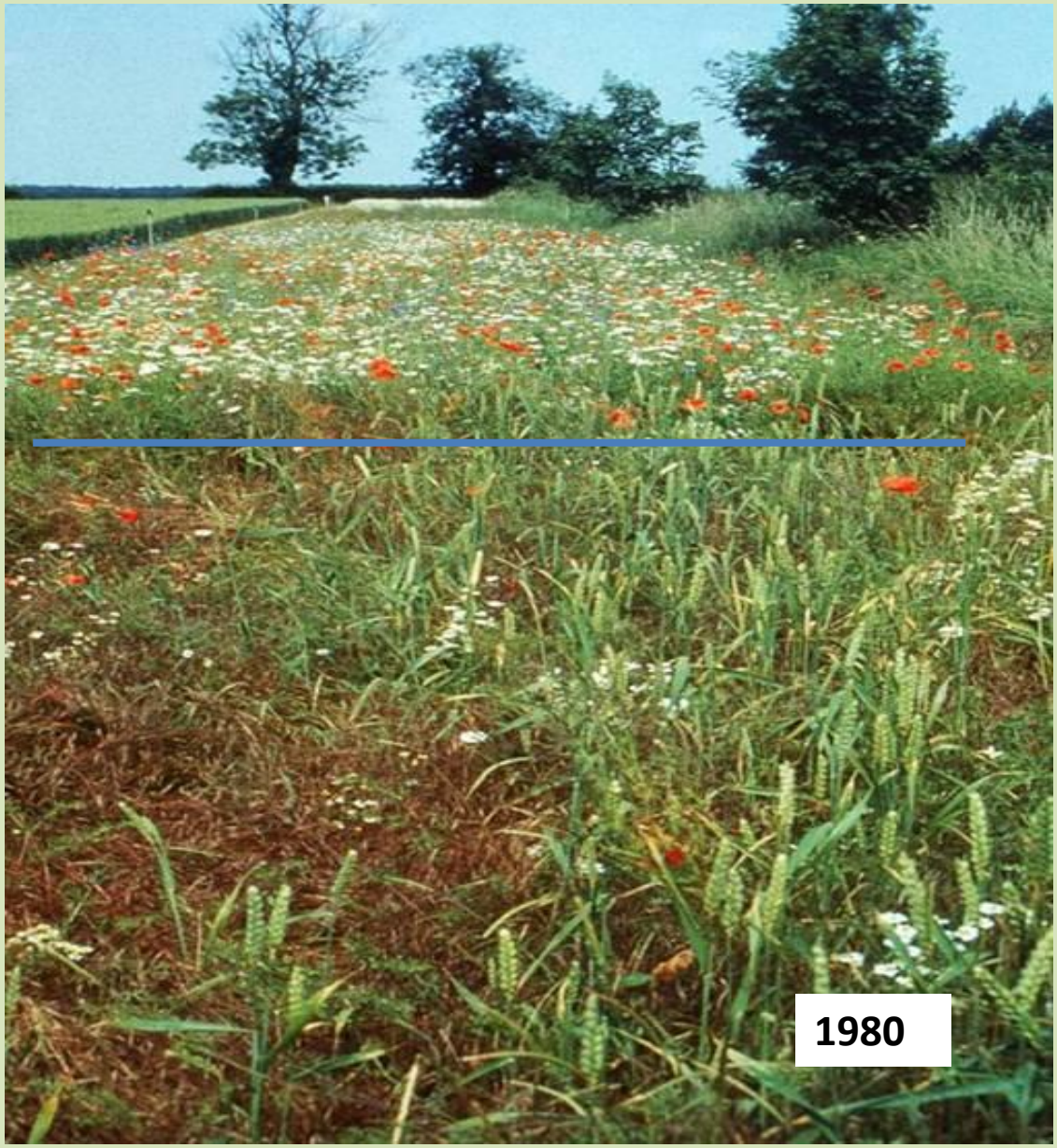
We've lost 98% of our flowers (pollen and nectar)

SOW SOME

HABITATS ARE MANAGED CROPS

BY DESIGN

BY ACCIDENT



THE BEST TWO HABITATS
WILD BIRD FOOD & FLOWERS

=kärringtand

REMEMBER.

HABITAT QUALITY AND VARIETY ARE KEY

APPROPRIATE MANAGEMENT IS VITAL

WILDLIFE IS A CROP AND NEEDS MANAGEMENT

BIRD FOOD =kärringtand

THE HUNGRY GAP

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

BIRDS

FOOD SCARCE OR RUN OUT	INSECTS BUILDING UP IF GOOD HABITATS	FRUITS, BERRIES, GRAIN BIRD FOOD CROPS?	FOOD HARD TO FIND

= ont om föda

= tillväxt av insekter om det finns bra habitat

= gott om föda

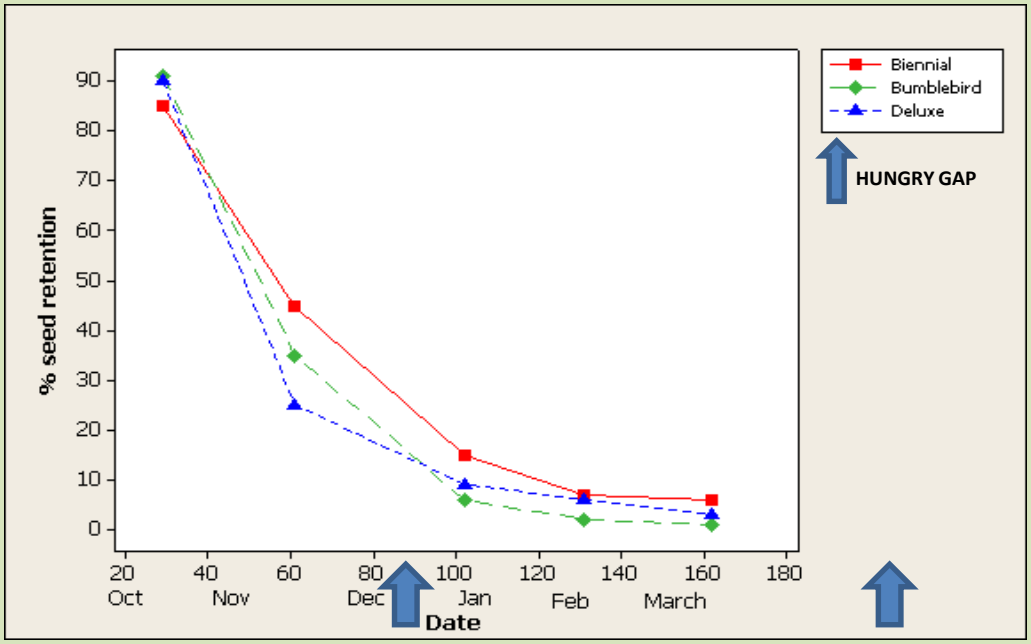
= ont om föda

INSECTS

VERY FEW EARLY FLOWERS	IF AVAILABLE POLLEN +NECTAR NOTABLE AUTUMN PLANTS

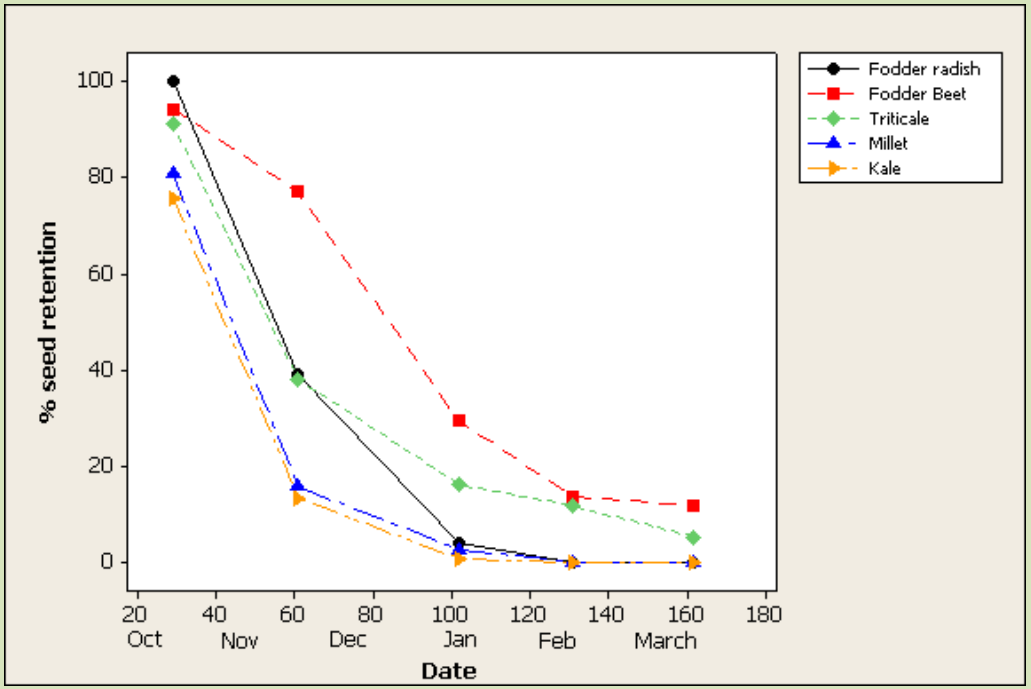
= ont om föda

= om det finns pollen & nektar då finns det föda för insekter.



Mean seed retention (%) on plants by patch type

= frötillgång beroende på vilken sort grödblandning som odlas, tvåårig, ”bumblebird”, lyxvarianten



Mean seed retention (%) by seed type

= frötillgång beroende på vad som odlas

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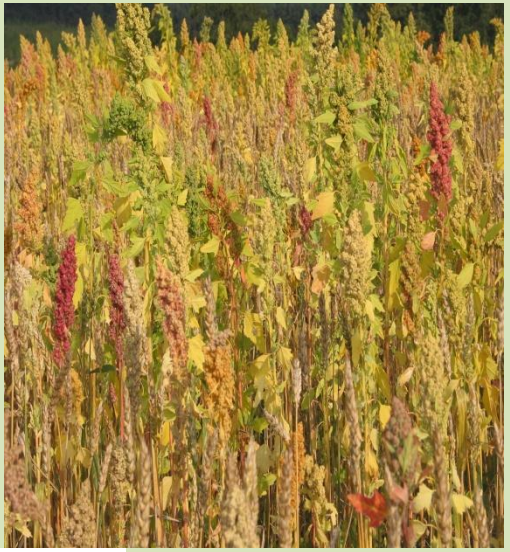
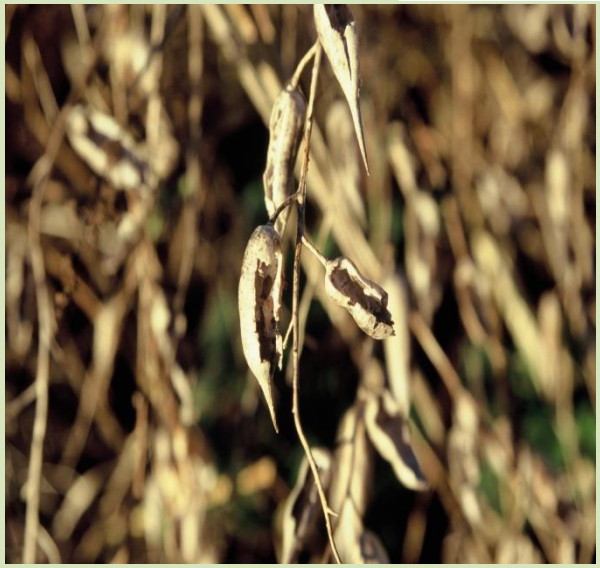


SHEDDING PROBLEMS



SUPPLEMENTARY FEEDING

WILD FLOWERS

THE GOLDEN RULES.

Poor management = Poor results

- **FLOWER SEED DEPTH IS CRITICAL** =sådjup
- **SOW AT THE CORRECT TIME OF YEAR** =såtid
- **PERENNIAL SPECIES MAY NEED REPEATED CUTTING IN YEAR ONE TO REDUCE WEEDS/GROWTH..**

=fleråriga växter kan behöva slås för att undvika ogräsuppförökning

CUTTING ANNUALS MEANS NO SEED =DEAD
CUTTING PERENNIALS MEANS FLOWERS NEXT YEAR

= om man putsar ettåriga växter då blir det inga frön
= putsar man fleråriga då blir det blommor nästa år

97% OF UK FLOWER MEADOWS GONE

FLOWERS FEED INSECTS, UNDERPIN FOOD CHAIN

=stödja

GRASS & FLOWERS	LEGUMES =baljväxter
LONGEVITY > 10 years	3 years
COST £250- £300 ha	£90- £110 ha
DELIVERY April- Sept	Mid June- Mid July
Complex mix = species rich.	Simple mix = poorer
Cuttings removed	Cuttings left?
= ta bort det som är slagit/putsat	=lämna kvar skörderesterna?

WEED PRESSURE

WEEDS IN YEAR ONE

SUMMER YEAR 2

FERTILITY

YEAR ONE MULTI CUTS

SUMMER YEAR 2

MANAGEMENT AFTER SOWING

Cutting annuals = no seed production

Cutting perennials = flower later

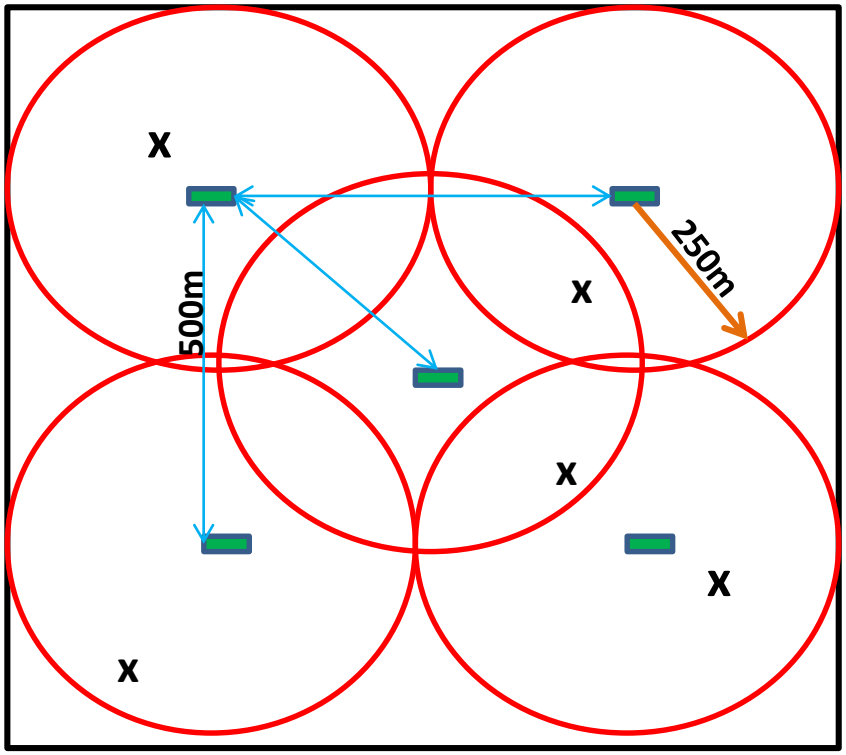
=Man kan senarelägga blomning genom att slå senare

Mowing= klippa, slå, putsa

MOWING DOES
NOT
KILL PERENNIALS

HOW MANY SOWN HABITATS PER 100HA?

This diagram is a farmers guide & based on data from CEH research



100ha (1km square).

5 equidistant habitats (5x20 ha).

Each habitat should be between 0.25ha to 0.5 ha

Recently the UK emphasis is on pollinators

Sown habitat

A 250m Radius circle covers 20 ha

x A bee nest

Longest distance between sown habitats

The distance the smallest bee species can travel for forage

= det behöver vara tillräckligt nära mellan habitaten

PROVIDING SEASON LONG GRASS AND FLOWERS
March to September

EARLY SEASON. March to May.
Difficult to achieve with sowing.
Remember the hungry gap

MID SEASON. June to July.
Flowering time for most sown flower.

LATE SEASON. Aug to Sept
Achieved by mowing or species

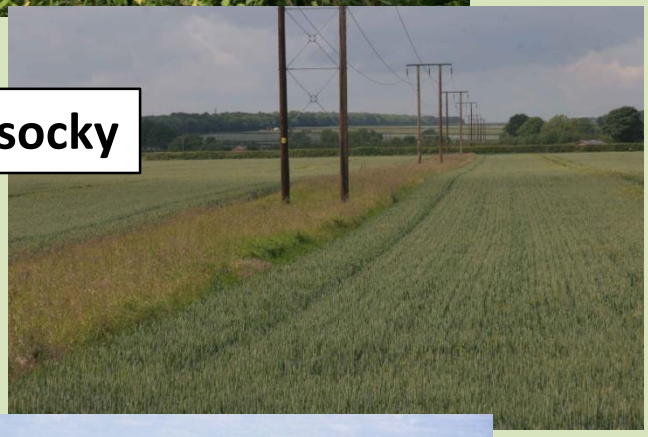
= genom att putsa kan man få foder
även i augusti till september

Cost effective, reliable, targeted mixes

Bumble bird

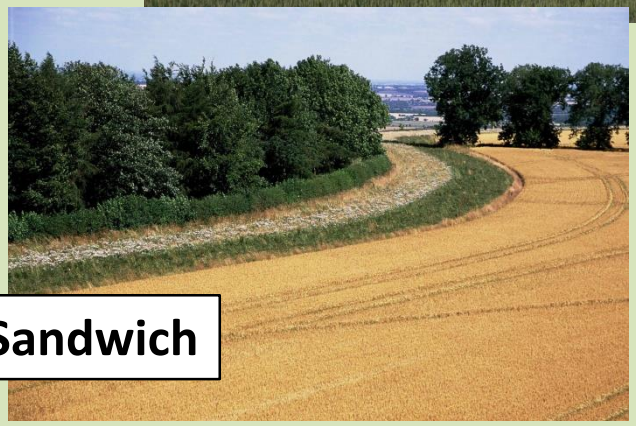
Legume based

Tussocky



Mid season

Sandwich



Autumn flowers

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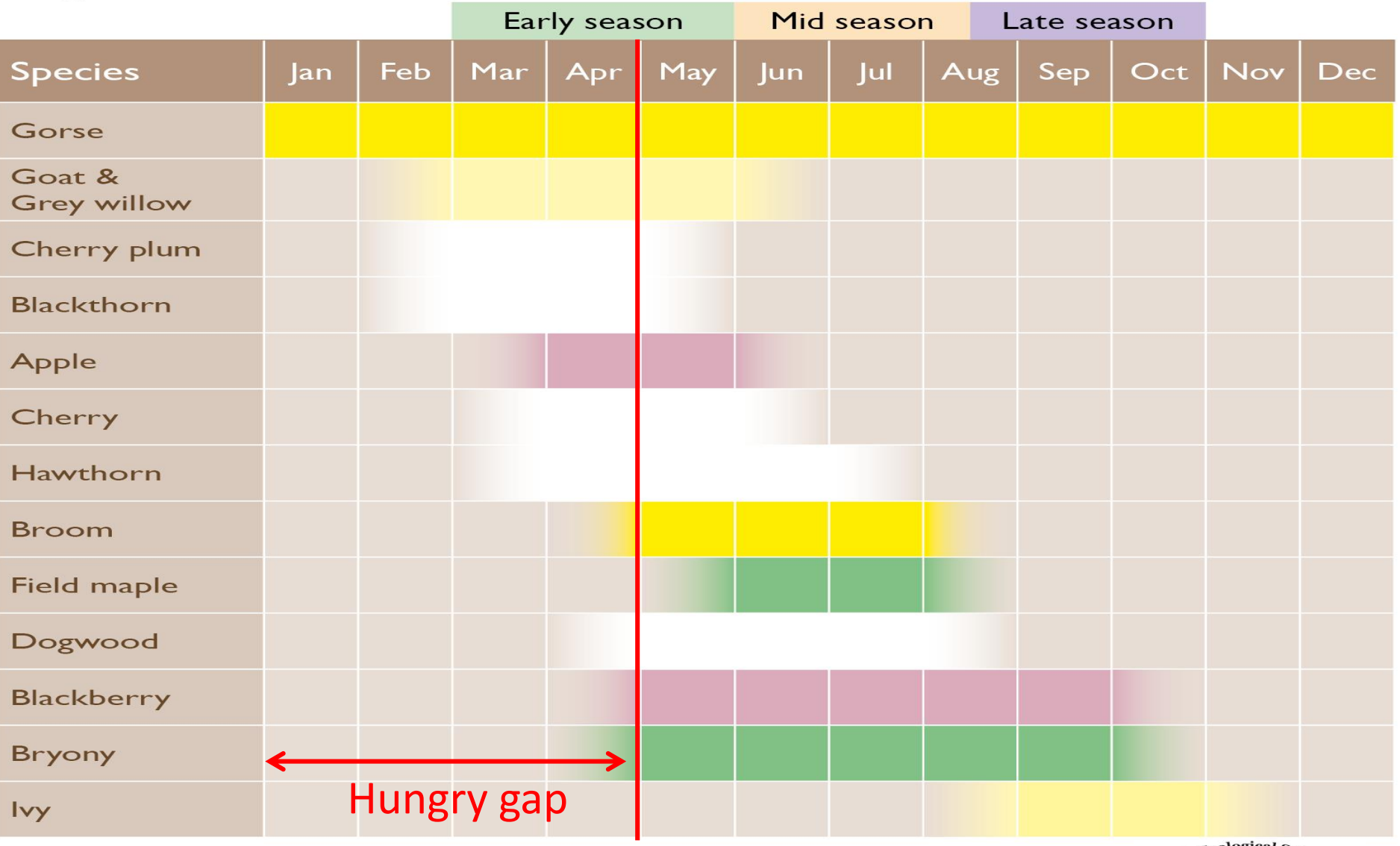
TREES AND SHRUBS



Key: Coloured squares depict flower colour and flowering period

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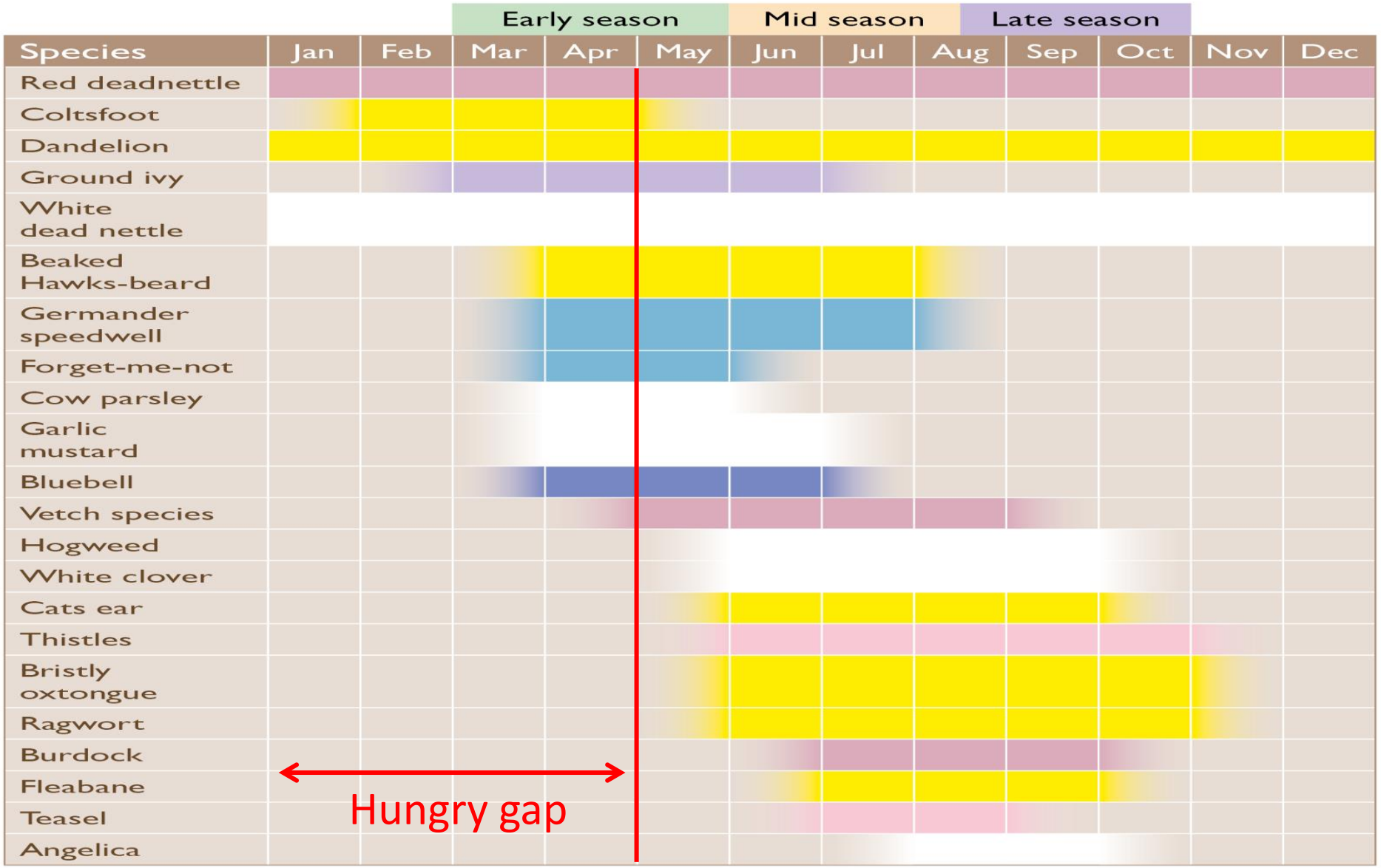
FLOWERS FOR FREE

Edwards Ecological Services Ltd



Key: Coloured squares depict flower colour and flowering period

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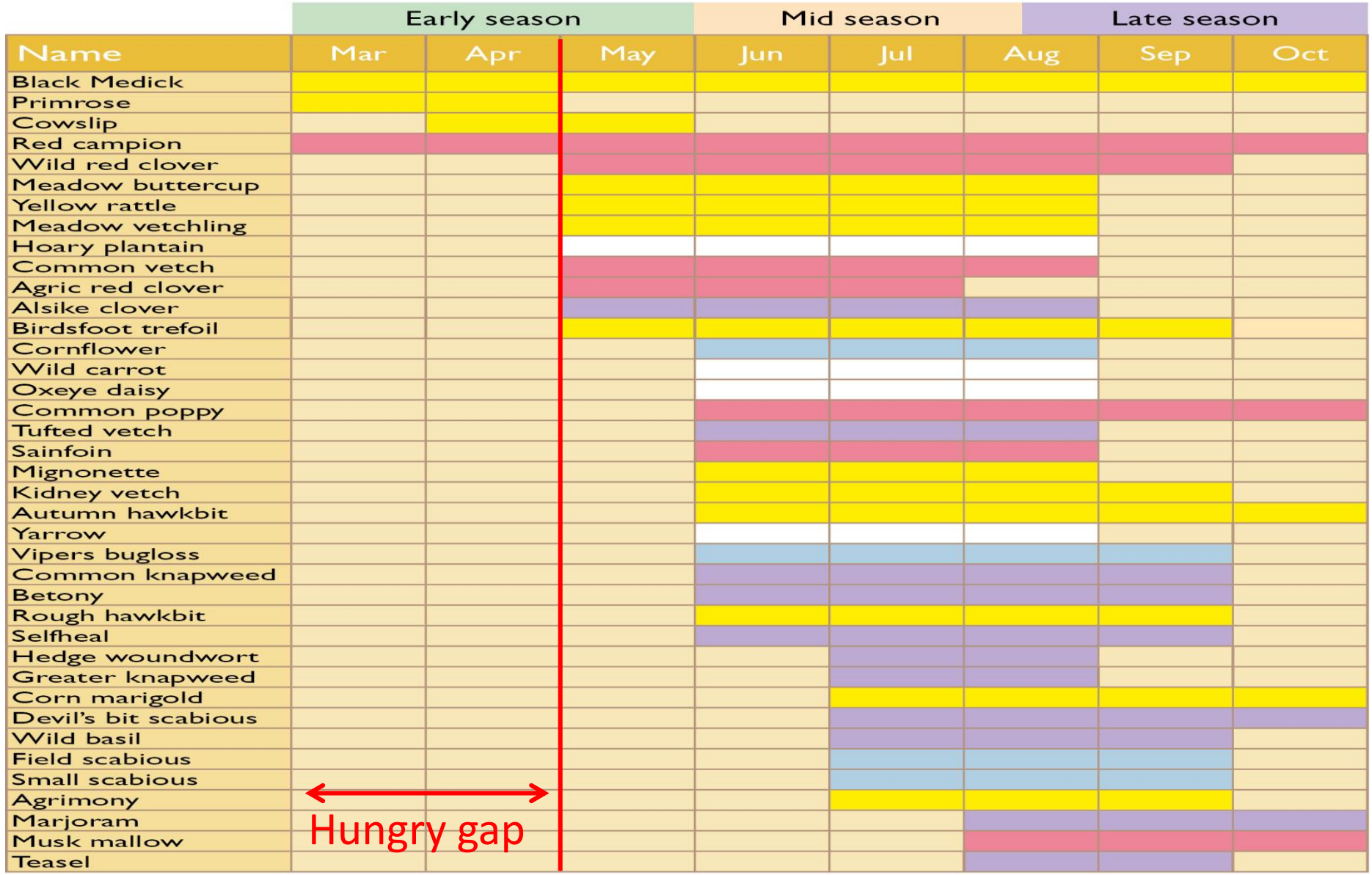
COMMERCIAL FLOWERS

Edwards Ecological Services Ltd



Key: Coloured squares depict flower colour and flowering period

UK POST BREXIT?

UK not EU drivers.

Environment is now embedded in agricultural policy.

Green issues/environmental pressures are increasing.

Less money for environment.

Politicians think more land out is the answer.

Future farmer payments may be replaced by delivering public goods ? (ecosystem services)

Some non farming organisations are driving UK agric policy.

Tack för att ni har lyssnat.

Some farming and wildlife DVD's

The Challenge
http://www.youtube.com/embed/gOi5nHnM_yE?list=UU0MHoQvaWAFqWOJeTfZtGmQ

Growing farmland Wildlife
https://youtu.be/ccRYnaikC4s

Green Hay
https://youtu.be/7pd0gzu-5mc

The Buzz of Biodiversity
https://youtu.be/Mh8Fs_zdIUI.