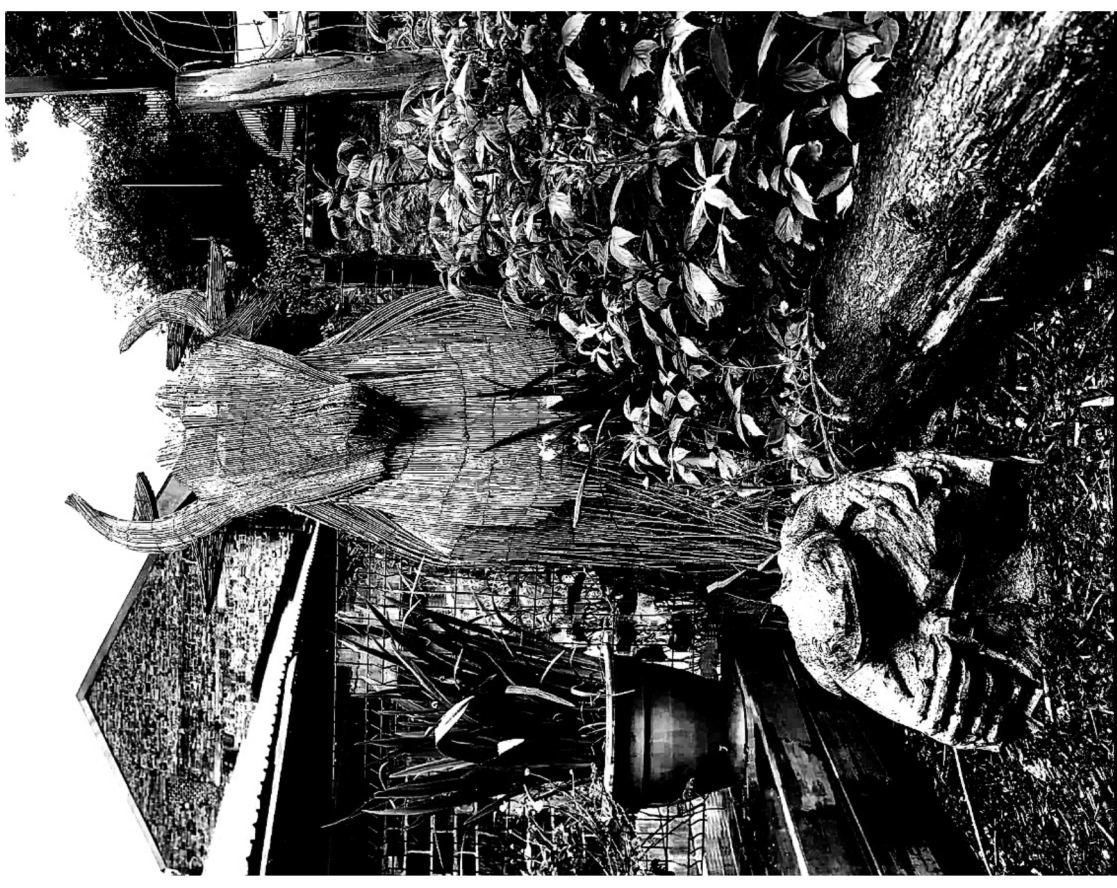


Earth Up



Issue 2 | Climate friendly food growing zine

OPERATION FARM



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Contents

3	Introduction
4	Ridan the Wave – The Ripple Effects of Food Waste Composting <i>Raddon Stephenson</i>
6	Using What's Freely Available in a Community Garden <i>Jayne McLean Kremer, Our Space Garden, Mossley</i>
8	Seed Swapping: A Radical Act! <i>Jo Payne, Manchester Urban Diggers</i>
10	Down-to-Earth Apple Tree Care: Dan's 10 Ds <i>Dan Hasler, Manchester Fruit Tree Co-op</i>
12	Mix it up! Growing vegetables in polycultures <i>Operation Farm & Teresa Pereira</i>
14	Further Reading & Resources

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Operation Farm is a community organisation in Tameside promoting engagement, involvement and enjoyment of food and growing. We improve wellbeing and share skills through community events, learning and activity sessions.

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For more info visit: www.operationfarm.org.uk

Further Reading & Resources

Food Waste Composting

Ridan Food Waste Composter: <https://www.ridan.co.uk>

Centre for Alternative Technology: <https://cat.org.uk>

Compost Song: <https://soundcloud.com/raddon-stephenson/the-compost-song>

Woodchip supply: £60 community price for van-load <http://treestation.co.uk>

Using Free & Natural Materials

Make Wattle fencing with branches by E Waddington (2022)
www.ruralsprout.com/wattle-fence

Book: 'Woodland Craft' by Ben Law (2017) GMC Publications

Book: *Practical Self-sufficiency* by Dick and James Strawbridge – 2020, Dorling Kindersley Ltd, London

Seed Saving

Beginners Seed Saving: www.soilassociation.org/take-action/growing-at-home/beginners-guide-to-seed-saving

Video: www.theguardian.com/lifeandstyle/gardening-blog/video/2014/jul/31/gardening-tips-seed-saving-for-beginners-video

Crop by Crop Guides: www.realseeds.co.uk/seedsavinginfo.html

The Gaia Foundation' Seed Sovereignty Programme: www.seedsovereignty.info

Fruit Tree Care

Community orchards info and support: www.theorchardproject.org.uk

Orchard practical guides: ptes.org/campaigns/traditional-orchard-project/orchard-practical-guides

Book: *How to prune an apple tree* by Chloe Ward -£4 from www.fruitworks.org.uk/trees/p/fruit-tree-pruning-guide

Annual Polycultures & Permaculture

Annual Polycultures – an easy way to 'permaculture' your plot:

<https://patrickwhitefield.co.uk/annual-polycultures-an-easy-way-to-permaculture-your-plot>

Jaiarkot's Advanced Polyculture: (based on *Gaia's Garden: A Guide to Home-Scale*

Permaculture by Toby Hemenway) <http://nccorganicarden.pbworks.com/w/page/64805814/Jaiarkot's%20Advanced%20Polyculture>

Introduction

Since issue one of Earth Up, concerns around climate change, political shifts and instability and ecological harm have ramped up again. Against this backdrop, and amidst an onslaught of negative messaging online we can campaign and stand up against unwanted forces but focus on taking actions ourselves because people seeing positive change around them is a powerful way to nurture hope for and confidence in the future.

The most impactful group to influence and inform have got to be children and young people and in this issue Raddon Stephenson from Lalley Allotment talks about his research on food waste composting with a local school and capturing the imagination of young curious minds to change thinking about food waste as well as providing for the needs of a community plot.

Global systems of production and marketing push new products on us all the time and the garden supply sector is no exception, with petrochemical based plastic and disposable products still dominating many garden centres. But in our gardens allotments and community spaces we can choose a different approach and employ creative ways to use found and reused materials and create biodiversity rich gardens. Get some inspiration and ideas from the low impact methods used to create Our Space community garden in Mossley.

Another crucial part of a sustainable, resilient food future is by saving and sharing seed - Jo Payne from Manchester Urban Diggers explains how and why they run their seed swaps - clue - it's easier than you think!

An investment in the future of self-reliance is growing fruit trees and Dan from Manchester Fruit tree Co-op shares his brilliant pruning top tips based on many years of experience to help keep them healthy and bearing fruit for years to come.

Finally, there is a surge in interest in cultivating vegetables in polycultures- that is growing a mixture of plants in the same spaces to mimic nature's preference for diversity for resilience and is an ancient practice for this reason. Based on workshops we ran this year we investigate some benefits and underlying principles to inform this style of food growing.

Hopefully there's information here to interest local food growing enthusiasts whether beginning or seasoned- we growers continually learn through experimentation - so here's to being curious, creative and meeting today's challenges with an open mind, staying connected and sharing knowledge (and seeds!).

Ridan the Wave!

The Ripple Effects of Food Composting

Raddon Stephenson explains how a food composting project involving school children led to wider changes beyond supplying much needed compost.



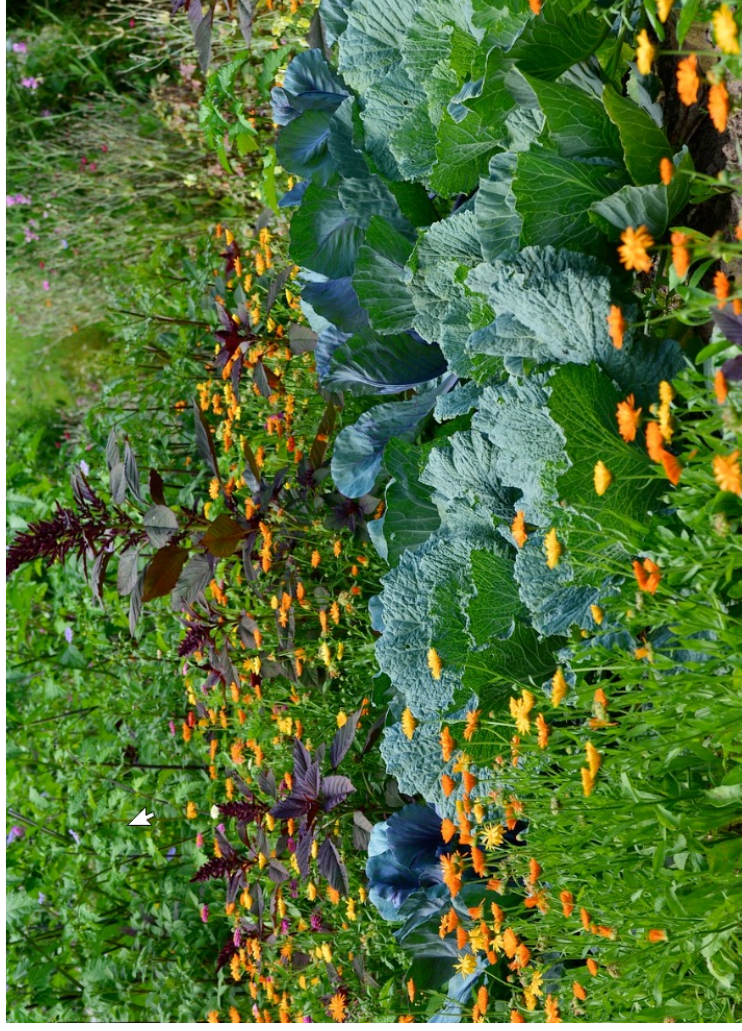
A community pantry redistributing supermarket surplus; a community allotment growing veg for the pantry and a primary school producing canteen waste daily – all within a hundred metres. What would happen if the flows of food and food waste between them could be linked through composting?

In 2022, funded by Recycle for Greater Manchester Community Fund, I set up a compost club to find out. Based at the Lalley Centre in Collyhurst, a community hub run by Caritas Salford, the project started with the purchase of a 400-litre compost tumbler and 3 maturation boxes made by Ridan Composters Ltd. Having seen a Ridan working at the Centre for Alternative Technology, I knew it would cope with the volume of waste food from the next-door school, plus scraps from the pantry.

The Ridan is an aerobic composter, which creates an oxygen-rich environment allowing aerobic bacteria to multiply as they consume the food waste fed into it. Turning a handle mixes the contents whilst pushing

them slowly through to a hole at the other end. The biological activity of the microbes produces heat, so the machine is always between 50-60°C. The maturation boxes can reach an incredible 80°C once full, before cooling over a period of months which allows fungi and worms to take over the decomposition. As a minimum, maintaining 60°C for a 48hr period is required to kill pathogens that may be present in decomposing meat and dairy, so the Ridan can take all kinds of kitchen or catering scraps. Helpfully, both the composter and maturation boxes are designed to be rat-proof and, so far, our local rodent population doesn't seem to have increased!

As with all composting, a good balance of both moisture and nutrients is key to avoid anaerobic conditions (producing more methane and a worse smell), so adding dry, carbon rich material such as woodchips or sawdust is essential. We add 50:50 food waste to wood, plus some ripped up brown cardboard into the maturation boxes for good measure. A local joinery company



approach is to start with a well composted bed early in the season, sow cold tolerant oriental leaves and quick growing roots such as radishes to bring early harvests. These can be arranged in groups to leave spaces for long season crops such as brassicas or later, more tender species like French beans planted in their place once they are finished. Taking account of how taller crops might cast shade as they grow, include some medium-sized vegetables, herbs and flowers with beneficial functions in between, positioned according to their needs for sunlight, nutrients and space at maturity to make the maximum use of the space and produce multiple harvests over the season.

Annual polycultures require pre-planning

and regular management to harvest and fill gaps by sowing or planting through the season and probably some additional feeding with natural plant feed too. But the reward is regular harvests from a range of crops from a single growing area (avoiding gluts!) whilst supporting biodiversity -perfect for a home garden or regularly visited allotment. Observing and recording how things work in your space is essential so you can adjust in future – there's always more to learn! There are tips and ideas to try in further reading at the back, so why not give it a go!

1. Mollison, B. C. (1990). *Permaculture: A Practical Guide for a Sustainable Future*. Island Press.

Mix it up!

Growing vegetables in polycultures

Article based on a workshop by Teresa Pereira of Northern School of Permaculture.

Polyculture is an ancient form of agriculture, the practice of growing a mix of different plants (and sometimes animals) together in the same area. It contrasts with modern industrialised farming method of single species monocultures which, whilst realising economies of scale, has led to significant problems including vulnerability to crop failure, damage to soil fertility, loss of habitat and pollution and poses serious risks to ecosystems and food supplies.

In nature, plants form sustainable communities over time through succession, developing interdependent habitats and biodiverse soils with beneficial associations that efficiently cycle energy and nutrients. Observing this, Bill Mollison developed permaculture as “the conscious design and maintenance of productive (.) ecosystems which have the diversity, stability and resilience of natural ecosystems.”¹

Permaculture uses systems thinking, taking a holistic approach to how components interrelate with each other collectively rather than as isolated individual elements. Implementing systems thinking in food cultivation can minimise external inputs by taking advantage of natural processes to cycle nutrients, manage pests and diseases, encourage resilience and use space efficiently to yield a range of harvests.

Similarly to newly emerging forest, permaculture designs arrange plants in multiple spatial layers: tall trees, lower trees, shrubs, herbaceous plants, ground cover plants and edible roots/rhizomes as well as climbing plants. Layering maximises productivity with plants in niches that benefit from different amounts of sunlight and shelter. This is the basis of the forest garden design approach and creates resilient, edible landscapes requiring less inputs.

To mimic a natural system, different functions and beneficial associations need to be incorporated into the plants in a

polyculture. “Guilds” are key to permaculture planting design. They are simply polycultures grouped around an anchor plant - the longest lived, usually a tree - with all plants in the guild providing one or more beneficial functions to support it. Functions can include attracting beneficial insects to predate on pests or repelling pests through strong scents; offering physical support for other plants to grow against; fixing nitrogen from the atmosphere to enrich the soil; providing cover to protect the soil from the elements or pulling up minerals from deeper in the soil to feed the upper layers when leaves rot down at the surface.

Forest gardens are primarily based on perennial plants, but the same principles can be applied to annual vegetable and herb polycultures, which although benefiting from fewer vertical layers can create an intensively grown and productive area.

Annual vegetables, salads, herbs and flowering plants grow in a variety of forms – taller and lower growing as well as root crops, even climbing plants, and can also perform different beneficial functions mimicking natural patterns.

To begin designing an annual polyculture it is important to start by assessing site conditions i.e. sunlight, protection, moisture and soil. Then consider how you might combine some slower growing, taller annual crops with others that are at medium and ground level, including those that can cover the soil quickly to protect it. Also think about which climbing and root layer crops could be included. Next consider edible plants with beneficial functions, for example peas and beans fix nitrogen, some flowers and herbs attract beneficial insects and others can protect nearby crops by confusing potential pests with strong smells like alliums.

Because annuals grow and die in a single year, time and plant hardiness are critical to planning an annual polyculture. One

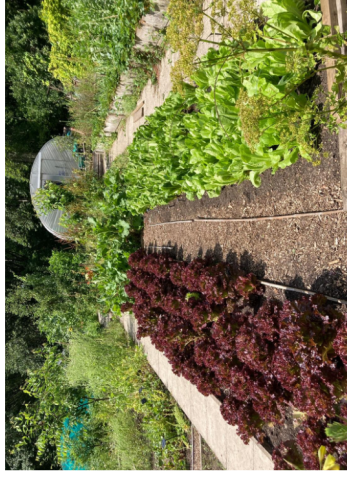


kindly supply MDF-free sawdust, whilst woodchip can often be got from tree surgeons.

So, what’s been the impact of Caritas Compost Club? We produced 9.7 tonnes of compost in our first year by processing 8.5 tonnes of food waste, significantly cutting costs for our large community allotment where our organic and ‘no-dig’ methods require a thick layer of compost to maintain soil fertility.

As significant, however, have been the project’s educational benefits: Pupils at our next-door school are engaged daily by bringing canteen waste in buckets over to compost it whilst singing a song I wrote to help them remember what to do, and why. Importantly, these children have started spreading the message that preventing food being wasted in the first place is the most important step in tackling food waste, as it avoids the waste of the resources (land, water, fertiliser, fuel) it took to produce it. Early in the project, school staff reported that some children were saving food for the compost! But after explaining at further school assemblies that our target was to have to compost as little food waste as possible, canteen staff have commented on how waste has been reduced overall as more children have started to take only what they know they’ll eat at lunch.

Seven months into the project I researched what impact it was having within pupils’ households. I found that parents in over half



of the 51 households who responded were more engaged in reducing and recycling food waste at home because of the messages their children passed on. Over two-thirds of parents felt that tackling food waste was more important to them since the project started, and 45% reported starting to use their green bin or composting at home because of the project. Interestingly, children’s use of the composter was correlated with them being more likely to mention the project at home, increasing the likelihood of changes to better food waste behaviours occurring. A compost club which involves a primary school in this way can, therefore, engage a large part of the wider community of adults who have the agency to make practical changes in a way children often do not.

From making the Lalley Allotment self-sufficient in mulching compost to reducing food waste in school pupils’ households, the effects of the compost club have been surprising and encouraging in myriad ways. I believe the project demonstrates a way to engage multiple communities in tackling food waste whilst producing great compost for an urban growing space. If you think your community garden or school could set up something similar, come visit or get in touch for more info!

Links and further information

email: r.stephenson@caritasallotment.org.uk

Instagram @lalleyallotment

Using What's Freely Available in a Community Garden

By Jayne McLean Kremer of Our Space Garden, Mossley

Coming together to grow food and community, store energy, share knowledge and the fruits of our endeavours in ways that provide for our needs and maintain the abundance of the natural world sounds a big ask; yet this is how humans have lived ever since we popped into existence. Nature thrives on diversity; recycling energy through its systems, it occupies all available space and adapts to local conditions. With this in mind, we set out to build a small community garden in Mossley on a patch of turf growing in a foot of soil above broken concrete rubble and surrounded on all sides by tall Victorian mills.

We had big plans but not a big budget: Building up the soil, making paths, hedges and raised beds, planning community spaces, planting fruit tree guilds and making habitats to attract wildlife whilst also considering the sunlight and rain. From the start we had to be open to what we could find and to peoples' generosity: The Vale's Carnival Arts group, the goodwill of local businesses like arboriculturists who delivered free mulch, equestrians who dropped off manure, neighbours and businesses who donated containers, willow and seeds, and people who gave time, energy and inspiration to make Our Space a community garden for everyone to enjoy.

Having completed soil building and paths, we set about dividing the planting areas and trying out different ways of making habitats for nature, whilst using all available space for growing food and flowers and using practical, traditional skills to build, grow and preserve.

We built a raised bed hibernaculum with found pipes and the remains of a felled tree, using old sheets to stop soil filling the spaces between the wood and pipes. An old plastic toy box became a micropond, with safe entrance and exits for animals to access the water made with stones and plants, and

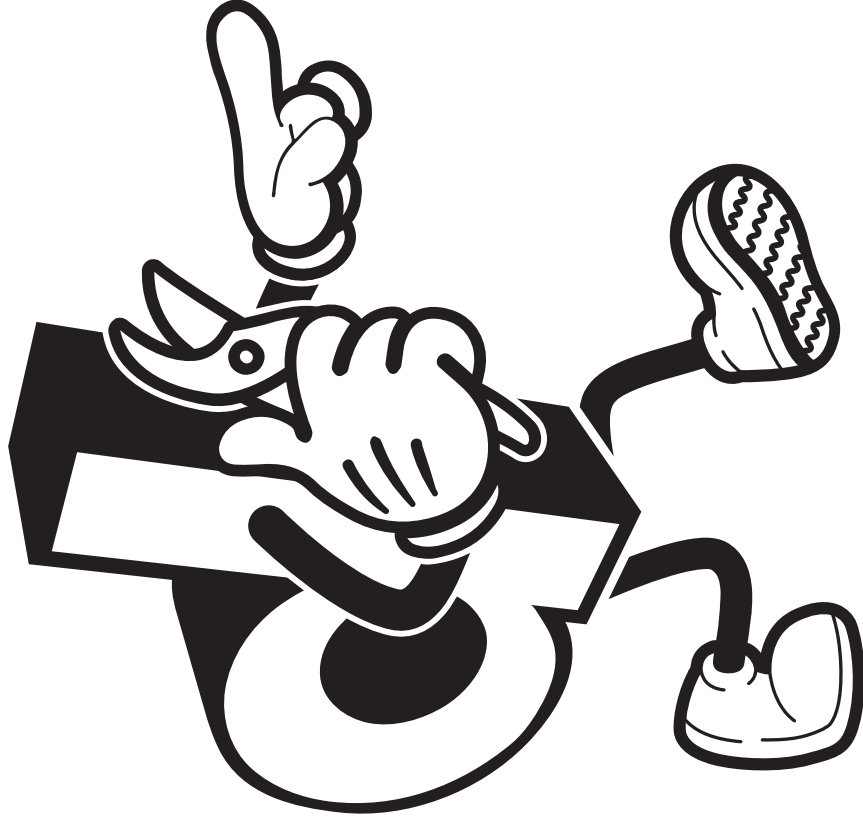
bee drinking fountains at the base made of plant pots and stones. Shelters for hibernating animals and insect hotels were built with pallets, wood, bark, broken pots and wire mesh, small stones; anything we could find. Benches, compost and mulch boxes, were made from discarded pallets and children painted stones to decorate and label our fruit tree guild plants. We've reused plant materials too: A willow arch made from branches cut from a tree in a volunteer's garden, sunflower stems as poles for climbing plants and old vines fashioned into garden ornaments and ties.

Our Wattle Raised Bed Edge

We particularly wanted to try making wattle fencing: a traditional construction used to enclose animals and rotate grazing, still used on some British sheep farms today. It's made as hurdles; movable 1.5 - 2 metre section of fencing but we wanted to use the technique in a smaller simpler form to border some of our garden's raised beds.

We discovered a pile of cut branches on a nearby public pathway with yellow archangel flowers growing through them, but the branch wood was still green (freshly cut) and so usable for our wattle project. Traditionally, wattle fencing includes a jig - a length of wood that the sharpened branch poles are hammered or nailed into so it's movable - but not needing this, ours was simpler and quicker to build. We gathered and laid out longer branches 6 - 8cm thick, and selected the longest as stake poles, to drive in to the ground vertically. For a dense clay soil, slicing a taper at the end of stakes is necessary, but having built up the soil, we knew we could push the poles deep into the ground quite easily without this. We spaced them at approximately 30cm apart along the edge of the raised bed.

From the dumped branch pile, we took long thin branches (3 - 5 cm thick) and selected longer and thinner lengths to weave horizontally through the securely planted



7.Design

Now, we're thinking about the shape of the tree. Rebalancing might be necessary, especially after dealing with a damaged branch. I carry Bio-Stretch in my pouch, a biodegradable twine that decomposes over time, great for tying down shoots to redirect growth or staking young branches that will eventually fill in gaps; think of these as 'insurance policies.'

8.Devices AKA Tools

Clean, sharp tools are essential. I've used Niwaki secateurs for many years, along with Silky saws and Bio-Stretch. Always have a rag and isopropyl alcohol to clean between cuts, and a good pair of goggles - nobody wants tree dust in their eyes and my trusty hard hat for 'the big stuff'.

9.Diagonal Cuts

With my nice sharp secateurs and saws, I always make diagonal cuts. It's better for your tools and the tree; it helps water run-

off and allows for faster healing, plus protects secateurs from working against the grain of the wood.

10.Drop

Last but not least, this covers June Drop (when the tree sheds excess fruit) and manual thinning of fruiting clusters, to help remaining fruit grow larger and get more sun and airflow, even beyond June. You can also defoliate, thinning leaves to boost airflow, sunlight, and prevent disease - so that's an extra bonus D for you!

So, there you have it: Dan's 10 Ds of pruning... or did I just sneak in an 11th?

Have I missed anything? Ping us a message at hello@mcrfruitreecoop.com - maybe there's a book in me and there's certainly a course we'll be running near you soon!

www.mcrfruitreecoop.com or www.facebook.com/manchesterfruitreecoop

Down-to-Earth Apple Tree Care

Dan's 10 Ds for Developing Your Orchard Disciplines

I'm Dan Hasler, co-founder of Manchester Fruit Tree Coop and I've been planting, pruning, and processing fruit for over 15 years in Greater Manchester. After hacking the usual 3 Ds and an X (see points 3-6 below) on my pruning courses, I got to thinking: there's got to be more Ds to pruning and fruit tree care. So let me delve deep, demonstrate, demystify and perhaps develop some new disciplines to our practice with the real 10 Ds that guide my approach to orchard and fruit tree care, starting with my favourite D.

1. Don't Judge

I always start my courses with this; returning participants love to chime in 'Don't Judge!' after I bark, "What's Dan's first D of pruning?" This first D covers so much: Don't judge the tree for doing what natural to it, whether that's putting out branches, buds, or fruit where it thinks best. Think of a newly planted tree or one in its formative pruning years like a hormonal teenager; it's going to want to do its own thing. Don't judge the previous pruner either; you don't know why certain branches were removed; they could've been diseased, damaged, or even chewed by a dog (been there, seen that!). Lastly, don't judge yourself for lack of experience or practice. This list is here to give you the confidence to prune.

2. Dormancy

Next let's touch on dormancy. As trees wake from their winter nap, apple trees need their 'Chill Hours'; anywhere from 400 to 1,000 hours below 7°C, to set fruit buds properly. So, climate change might threaten fruit yields, especially down south; something to watch in the North as the weather shifts; let's learn and share our findings.

3, 4 and 5 The Big Three Ds – Dead, Damaged, and Diseased

Your go-to pruning priorities. Walk around the tree, assess from all angles, and focus on these cuts first. Take progress shots if you're working on older or veteran trees to track how they evolve after your prune. Just remember to not remove more than 30% of the overall canopy, perhaps only 20% if dealing with an older or veteran tree. I like to pile branches at the base of the tree and constantly reassess how much I'm removing. It also makes the removal of dead wood easier.

6. Dam. Nuisance.

Branches – Instead of the old 'X' for crossing branches, let's call them what they are! These are branches growing toward the centre, anything that's overlapping, in the way, or likely to be in the way. They're pesky, but no need to judge the tree or the person who let them grow! I'd even add crown reduction in here: think water shoots and perhaps even the removal of central leader branches if that's the form you're after. I like to give each major branch a good shake—if I hear a rattle, I know I've still more to prune. Every branch and fruit spur should have its own space.



stakes, pressing each layer of branch weave down firmly. When taking the next branch to weave through the stakes, we made sure that the second branch was woven on the opposite side from the first, so that the stake pole in the ground was gripped securely on both sides by the horizontal weave. Once the weaving was completed, we had a strong low fence along the raised bed, and we cut the vertical poles to size. Our younger gardeners

found some split barrel edging, and made a decorative arching top to the fence, which has held in place now for three years and probably still has life left in it too!

Join Good Earth Community on www.facebook.com/groups/1182264789110564
Our Space Garden updates on Facebook @TheValeMossley

Seed Swapping: A Radical Act!

By Jo Payne of Manchester Urban Diggers (MUD)



On 22nd February MUD hosted our fifth annual Seed Swap. Every year has been different, and we learn each time. Here's why and how we do it.

Seeds are the most important part of human history; seed saving began around 12,000 years ago¹, and for thousands of years we've known to save seeds to plant at home. Today garden centres, supermarkets and online specialists supply most of the seeds bought by the public to grow food and to decorate our gardens. But there's a dark side to the global seed industry; farmers around the world are sold hybrid and GM seeds that they cannot save and are sometimes subject to laws requiring them to buy GM crop seed every year. This puts many farmers (and the supply of food) at the mercy of huge corporations; just four companies control 50% of the world's seeds and the same four over 60% of pesticides².

However, farmers, gardeners, groups and independent organisations around the world

continue to push back by saving seeds. So, seed saving and swapping is a radical act, giving us control over the seeds we sow, save and share in our home and community gardens. This is what is sometimes called Seed Sovereignty.

As well as saving money, saving seed can be a way to select year on year, to grow plants which are better adapted to local growing conditions. This takes time and skill but is an interesting activity to try out. Saving seed can get complicated, depending on what you're trying to save. I've been on courses and experimented in our garden but generally it needs a controlled area and sometimes community gardening can feel the opposite of that! (For advice on easier crops to save seed from, see the further reading section at the back.)

So, you've saved seeds, or have some bought seed left over, or you just want to sow a little and don't want to buy a whole pack; you need to get yourself to a Seed Swap, or better

yet, organise your own! It's pretty simple, there's just a few basic things you need.

First - shelter: Indoors is best to avoid wind blowing the packets around and bad weather putting people off, but we use a marquee, and it does the job. Second - protect your seeds: We use about eight A4 sized plastic boxes, deep enough to stand a seed packet up in with lids that click securely shut.

Third - seeds! We put out half empty packets and older seeds we haven't used; although germination rates diminish over time its free and people might want to try!

We organise them into sections with clear labels on each box e.g. Roots; Leaves/Salad; Peas & Beans; Squash & cucumbers; Tomatoes/chillies/aubergines; Onions/garlic; Flowers.

The idea is that people can add seeds they bring and take what they want out, either in the packets or in spare envelopes we provide. We don't track what people take or bring but that's up to you how you organise it.



1. National Geographic Society (2022). The Development of Agriculture. National Geographic. <https://education.nationalgeographic.org/resource/development-agriculture>
2. Source: ETC Group. Food Barons 2022: Crisis Profiteering, Digitalization and Shifting Power. Available at: https://www.etcgroup.org/files/files/food_barons-summary-web.pdf.



We also have a section for small plants, seedlings, tubers and house plants, usually in bags or pots. Remember to tape down labels and provide a pile of spare pots, labels, some permanent pens and masking tape.

Remember, F1 hybrid seeds are crossbred for specific traits, so offspring may not have the same characteristics as the parent plant: Avoid buying these so you can always save seeds and know what you're going to get.

So that's the set up – how to make it an event to remember? Add key information to flyers/ posters: Let people know if they don't need to bring seeds and they can come and take some stuff anyway; what sort of seeds might be available; ask for seeds to be labelled and with dates of harvest if possible and explain what to expect on the day. Give plenty of notice; two months is ideal and share it throughout your networks. To make it more of an event, provide drinks and food for donations (or ask for donations at the entrance). This year we had stalls hosted by local projects; in the past we've had speakers such as Joe from Real Seeds who volunteers with us. Garden tours and music also help make it a more engaging and fun event.

Lastly, you can hold a seed swap any time of the year! Make it seasonal with different seeds and plants. The more regular it is, the more people will engage and the more we can all swap and share!