

# Agroecology traineeship programme

Horticulture Curriculum



CORE MODULE	LEARNING OBJECTIVES	LEARNING OUTCOMES – TRAINEES WILL BE ABLE TO...	RESOURCES FOR SELF DIRECTED LEARNING
<b>1. The Landworkers' Alliance and agroecology</b>	Understand agroecology as a sustainable farming practice that considers the relationship between people, plants, animals and their environment. Understand agroecology as a political movement.	Understand the meaning of 'food sovereignty' and 'agroecology'	<b>The Landworkers' Alliance</b> <a href="http://www.landworkersalliance.org.uk">www.landworkersalliance.org.uk</a>
	Understand the sociocultural implications of growing crops particularly with regards to marginalised groups		<b>Soil Association</b> <a href="http://www.soilassociation.org">www.soilassociation.org</a>
	Understand that systems such as patriarchy, class and racism can affect participation in landwork and that practitioners of agroecology seek to overcome this.		<b>Organic Farmers and Growers</b> <a href="http://www.ofgorganic.org">www.ofgorganic.org</a>
	Be aware of the history and meaning of food sovereignty		<b>Organic Growers Alliance</b> <a href="http://www.organicgrowersalliance.co.uk">www.organicgrowersalliance.co.uk</a>
	Be aware of some of the key organisations representing agroecological producers in the UK and interenationally.		<b>Biodynamic Association UK</b> <a href="http://www.biodynamic.org.uk">www.biodynamic.org.uk</a>
	Understand the principles of organic production		<a href="http://www.landinournames.community">www.landinournames.community</a>
	Be aware of why a farm may decide to be organically certified or not. Be aware of key UK certification schemes.		<a href="http://www.agricology.co.uk">www.agricology.co.uk</a>
	Be aware of other key methodologies within agroecology e.g. permaculture, stockfree farming, biodynamics		<b>Farming For Climate Action – Digital Guide by NFFN</b> <a href="http://www.nffn.org.uk/wp-content/uploads/2022/01/NFFN-Farming-For-Climate-Action-Report_Digital.pdf">www.nffn.org.uk/wp-content/uploads/2022/01/NFFN-Farming-For-Climate-Action-Report_Digital.pdf</a>
<b>2. Soil health, building fertility and crop rotation</b>	Understand the physical, chemical and biological properties of soil.	Determine texture and structure of soil through visual ad touch assessments	<b>Book: Just the Facts – Introduction to Soil Science</b>
	Understand the importance of soil organisms and soil structure to the health of the soil.	Identify potential deficiencies by observation of the crop	<b>PDF: The Basics of Soil Fertility by ORC</b> <a href="http://www.organicresearchcentre.com/wp-content/uploads/2020/09/4002-soil-fertility.pdf">www.organicresearchcentre.com/wp-content/uploads/2020/09/4002-soil-fertility.pdf</a>
	Be able to identify different soil types based on texture and structure. Be aware of the role of soil analysis on the agroecological farm.	Demonstrate the processes behind building and maintaining an effective compost system (e.g. aerating, covering)	<b>Crop Rotations factsheet</b> <a href="http://www.agricology.co.uk/sites/default/files/Soil%20Association_Horticulture%20rotations.pdf">www.agricology.co.uk/sites/default/files/Soil%20Association_Horticulture%20rotations.pdf</a>
	Understand the relationship between soil health, plant health and the resistance and resilience of crops to insects and disease.	Apply compost or manure to a rotation to maximise benefit to crop.	<b>Manual for ROTOR crop rotation planner tool (download available via website on page 1)</b> <a href="http://www.zalf.de/de/forschung_lehre/software_downloads/Documents/oekolandbau/rotor/manual_ROTOR.pdf">www.zalf.de/de/forschung_lehre/software_downloads/Documents/oekolandbau/rotor/manual_ROTOR.pdf</a>
	Understand the link between soil fertility and organic matter content and why this is important in agroecological farming systems.	Sow a green manure through method appropriate to scale and conditions	<b>Cotswold Seeds Species Guide (for choosing green manure mixes)</b> <a href="http://www.cotswoldseeds.com/species-guide.asp">www.cotswoldseeds.com/species-guide.asp</a>

	Understand the nitrogen and carbon cycles and their role in soil health. Understand nutrient budgeting and be aware of the major nutrient requirements of plants.	Identify crop families to plan and carry out successful rotations	<b>Annual Weed Management PDF – Defra and Garden Organic</b> <a href="http://www.agricology.co.uk/sites/default/files/annual%20weed%20management.pdf">www.agricology.co.uk/sites/default/files/annual%20weed%20management.pdf</a>
	Understand the role of oxygen and good aeration in the soil.		<b>Factsheet: Crop Rotation and it's Ability to Supress Perennial Weeds – OK Net Arable</b> <a href="https://orgprints.org/id/eprint/31053/1/PA_038_Crop_Rotation.pdf">https://orgprints.org/id/eprint/31053/1/PA_038_Crop_Rotation.pdf</a>
	Be able to identify drainage issues and soil erosion, and their causes		<b>Handbook: Cover crops – A practical Guide to Soil System Improvement – NIAB TAG</b> <a href="http://www.agricology.co.uk/sites/default/files/NIABTAG%20Cover%20Crops_lowres.pdf">www.agricology.co.uk/sites/default/files/NIABTAG%20Cover%20Crops_lowres.pdf</a>
	Have an understanding of weed growth and varieties as indicators of soil condition		<b>Guide: What soil organic matter is what it does</b> <a href="https://ahdb.org.uk/knowledge-library/what-soil-organic-matter-is-what-it-does">https://ahdb.org.uk/knowledge-library/what-soil-organic-matter-is-what-it-does</a>
	Understand the role and impact of different types of cultivation		<b>Basic Intro to No Dig – Charles Dowding</b> <a href="https://www.youtube.com/watch?v=VJhGIrQKs1k">https://www.youtube.com/watch?v=VJhGIrQKs1k</a>
	Be aware of different approaches to cultivation – e.g. no dig/ minimum till – and why or when they may be used		<a href="https://soils.vidacycle.com/wp-content/uploads/2019/08/VESS_score_chart.pdf">https://soils.vidacycle.com/wp-content/uploads/2019/08/VESS_score_chart.pdf</a>
	Be aware of different methods for improving soil fertility, including composts, woodchip, mulches, animal and green manures in enhancing the soil.		<b>Download the free Agroforestry Handbook – by Soil Association, Organic Research Centre, Woodland Trust and partners</b> <a href="http://www.soilassociation.org/farmers-growers/technicalinformation/agroforestry-on-your-farm/download-the-agroforestry-handbook/">www.soilassociation.org/farmers-growers/technicalinformation/agroforestry-on-your-farm/download-the-agroforestry-handbook/</a>
	Understand the benefits of agroforestry		<b>Webinar – DIY peat free growing media. Technical panel discussion hosted by OGA</b> <a href="http://www.youtube.com/watch?v=Qw2DFj8xoMs">www.youtube.com/watch?v=Qw2DFj8xoMs</a>
	Understand the principles of recycling and reusing waste on-farm		<b>The Soil Food Web and Nutrient Cycling</b> <a href="https://ahdb.org.uk/knowledge-library/soil-food-web-nutrient-cycling">https://ahdb.org.uk/knowledge-library/soil-food-web-nutrient-cycling</a>
	Understand the core rotational practices in organic systems and why they are important. Understand how to manage and develop rotations for different scales.		<b>Factsheet: Crop Rotation and it's Ability to Supress Perennial Weeds – OK Net Arable</b> <a href="https://orgprints.org/id/eprint/31053/1/PA_038_Crop_Rotation.pdf">https://orgprints.org/id/eprint/31053/1/PA_038_Crop_Rotation.pdf</a>
<b>3. Propagation</b>	Understand different methods of propagation and thier requirements. Be aware of the ideal properties of propagating mediums.	Demonstrate ability to successfully raise crops through: sowing (direct and in modules), preparing beds, hardening off/transplanting/thining, and protecting	<b>Book: RHS Guide to Propagation</b>
	Understand factors to consider when planning a sowing and planting schedule, eg succession and year-round harvest	Prepare ground for seeding and transplanting, using appropriate methods and equipment.	<b>Charles Dowding: Starting plants from seeds</b> <a href="http://www.youtube.com/watch?v=QmyD2iyB-FU">www.youtube.com/watch?v=QmyD2iyB-FU</a>

	Be aware of the pros and cons of propagation vs buying in transplants	Use effective spacing and transplanting methods for a range of crops	Book: <b>The Market Gardener A Successful Grower's Handbook for Small-Scale Organic Farming</b>
	Be aware of the facilities that would be required to propagate on farm	Use appropriate watering techniques for seeds and transplants	Book: <b>The Lean Farm</b>
	Understand key factors to consider when transplanting be aware of the importance of hygiene and plant care in the propagation process		
<b>4. Protected cropping</b>	Understand how to use range of protected cropping environments to extend the season and grow tender plants	Manage the environment in a protected cropping area, eg through ventilation, irrigation and damping down	Book: <b>The Polytunnel Handbook</b>
	Understand how to maintain long and short term fertility within protected cropping		<b>Good agricultural practice in irrigation management</b> <a href="http://www.fibl.org/fileadmin/documents/shop/2522-irrigation.pdf">www.fibl.org/fileadmin/documents/shop/2522-irrigation.pdf</a>
	Understand a range of irrigation and climate control systems for protected cropping environments		<b>Bringing in the Bugs – Guide to pest control in protected cropping areas</b> <a href="http://www.agricology.co.uk/sites/default/files/Dollimore_Bringing_in_the_bugsOG35.pdf">www.agricology.co.uk/sites/default/files/Dollimore_Bringing_in_the_bugsOG35.pdf</a>
	Be aware of weed, insect and disease threats in protected environments and how to deal with them		<b>Weed Control in Organic Vegetable Cultivation</b> <a href="https://cdn.dal.ca/content/dam/dalhousie/pdf/faculty/agriculture/oacc/en/pest/FiBL_WeedCtrl_Vegetables.pdf">https://cdn.dal.ca/content/dam/dalhousie/pdf/faculty/agriculture/oacc/en/pest/FiBL_WeedCtrl_Vegetables.pdf</a>
			<a href="http://www.agricology.co.uk/resources/biogreenhouse-publications">www.agricology.co.uk/resources/biogreenhouse-publications</a>
			<b>Meffers A (2017) The greenhouse and Hoophouse Grower's Handbook. Chelsea Green</b>
	Know what factors need to be assessed before siting a tunnel or glasshouse. Be aware of the role of planning regulations.		<b>RHS Growing Guide</b> <a href="http://www.rhs.org.uk/advice/beginners-guide">www.rhs.org.uk/advice/beginners-guide</a>
<b>5. Crop handling and storage</b>	Recognise the opportunities for mechanical harvesting and the risks involved	Be competent at efficiently harvesting a range of crops	
	Understand the benefits of storing crops in the correct environment. Understand techniques for crop storage, eg. grading, cooling, clamps	Be able to approximately predict harvest time/quantity of specific crop(s)	<b>Storage or organically produced crops</b> <a href="https://orgprints.org/id/eprint/8241/1/Storage_organic_produce_report.pdf">https://orgprints.org/id/eprint/8241/1/Storage_organic_produce_report.pdf</a>
	Understand the regulations that apply to washing and packing organic produce	Be able to grade a range of crops for storage	<b>Harvesting and Storage – Garden Organic</b> <a href="http://www.gardenorganic.org.uk/harvesting-and-storage">www.gardenorganic.org.uk/harvesting-and-storage</a>
<b>6. Tools, machinery and irrigation</b>	Be able to recognise the appropriate machinery for a range of tasks, and understand the benefits and drawbacks to its use	Be competent at using and performing basic maintenance on a range of hand tools and machinery appropriate to the method of production. This may include hand rotavators, wheel hoes, seed drills, mowers, tractors and strimmers	<b>Packing Resources for Organic Businesses</b> <a href="http://www.soilassociation.org/certification/packaging-resources-for-organic-businesses/">www.soilassociation.org/certification/packaging-resources-for-organic-businesses/</a>

	Be aware of key health and safety issues around using machinery	Be able to use a range of irrigation systems	<b>Machinery – Use It Safely</b> <a href="http://www.hse.gov.uk/agriculture/topics/machinery.htm">www.hse.gov.uk/agriculture/topics/machinery.htm</a>
	Understand factors to consider when designing an irrigation system		<b>Irrigation 101 – How to choose the right water source for your farm or garden</b> <a href="https://modernfarmer.com/2015/07/irrigation-101/">https://modernfarmer.com/2015/07/irrigation-101/</a>
	Understand water holding capacity and how to assess it		<b>Machinery Guide: Cultivation – Soil Association</b> <a href="http://www.soilassociation.org/media/4567/m1-ho-machinery-guide-cultivation.pdf">www.soilassociation.org/media/4567/m1-ho-machinery-guide-cultivation.pdf</a>
<b>7. Weed, pest and disease control</b>	Understand the principles of weed, pest and disease management in agroecological systems and the use of integrated pest management	Be able to identify a wide range of weeds, diseases, pests, beneficial insects. Be able to manage these effectively in relation to a range of crops.	<b>The Role of Agroecology in Sustainable Intensification</b> <a href="http://www.agricology.co.uk/sites/default/files/ORC119_SNHagroecology.pdf">www.agricology.co.uk/sites/default/files/ORC119_SNHagroecology.pdf</a>
	Understand the impact of routine practices on weed, pest and disease management, e.g. raising healthy plants, watering correctly, regular observation, garden hygiene		<b>E-book (free): Habitat Creation and the Management of Pollinators – UK Centre for Ecology and Hydrology</b> <a href="http://www.ceh.ac.uk/book-habitat-creation-and-management-pollinators">www.ceh.ac.uk/book-habitat-creation-and-management-pollinators</a>
	Understand available methods for control: Barriers, biological control, natural remedies, chemical controls available to organic systems		<a href="https://ahdb.org.uk/pests">https://ahdb.org.uk/pests</a>
<b>8. Plant biology and seed saving</b>	Have an awareness of the history and politics of seed sovereignty, current political situation and impact of Brexit	Demonstrate effective plant selection for seed saving	<b>Seed Sovereignty – Intro to seed production, crop guides, seed saving</b> <a href="http://www.seedsovereignty.info/our-resources/">www.seedsovereignty.info/our-resources/</a>
	Understand plant classification systems and basic plant biology		<b>Real Seeds</b> <a href="http://www.realseeds.co.uk/">www.realseeds.co.uk/</a>
	Be aware of the pros and cons of F1 and open pollinated seed types		<b>Heritage Seed Library</b> <a href="http://www.gardenorganic.org.uk/hsl">www.gardenorganic.org.uk/hsl</a>
	Understand the importance of variety selection, seed quality, viability and disease resistance when saving seed		<b>RHS Plant Classification YouTube Channel</b> <a href="http://www.youtube.com/playlist?list=PLirtZef1iQ7ovD7aKMakJGP_7U69tLiBM">www.youtube.com/playlist?list=PLirtZef1iQ7ovD7aKMakJGP_7U69tLiBM</a>
<b>9. Business and marketing</b>	Understand a range of routes to market for agroecological produce	Articulate future aspirations and feel supported in next steps.	<b>Book: ORC Organic Farm Management Handbook – for costs and performance of running a farm</b>
	Understand the importance of keeping records of observations, sales, harvest weights, planting & harvest times and weather	Be able to effectively plan a working week/work day	<b>Masterclass: Logistics of running a CSA</b> <a href="https://communitysupportedagriculture.org.uk/resources/masterclass-logistics-of-running-a-csa/">https://communitysupportedagriculture.org.uk/resources/masterclass-logistics-of-running-a-csa/</a>
	Understand key elements of business planning and market research	Communicate effectively with colleagues	<b>Integrated Farm Management: A Guide</b> <a href="http://www.agricology.co.uk/sites/default/files/Integrated_Farm_Management_A_Guide.pdf">www.agricology.co.uk/sites/default/files/Integrated_Farm_Management_A_Guide.pdf</a>
	Understand how to set pricing for a product		<b>Horticultural Produce Price Data</b> <a href="http://www.soilassociation.org/farmers-growers/market-information/price-data/horticultural-produce-price-data/">www.soilassociation.org/farmers-growers/market-information/price-data/horticultural-produce-price-data/</a>



	Be aware of sources of start-up support, funding and planning issues		<b>Employment opportunities (under employment)</b> <a href="http://www.soilassociation.org/farmers-growers/market-information/organic-marketplace/">www.soilassociation.org/farmers-growers/market-information/organic-marketplace/</a>
	Be aware of routes to employment and further learning		<b>OGA Forum</b> <a href="https://organicgrowersalliance.co.uk/forum/oga/">https://organicgrowersalliance.co.uk/forum/oga/</a>
	Understand ways to engage with a wider community (e.g. local businesses, members of the public, groups and schools) and business implications of this		<b>Organic Market Gardeners Facebook Group</b> <a href="https://www.facebook.com/groups/1214414278648144/?hoisted_section_header_type=recently_seen&amp;multi_permlinks=5029945530428314">www.facebook.com/groups/1214414278648144/?hoisted_section_header_type=recently_seen&amp;multi_permlinks=5029945530428314</a>
	Understand sources of support and solidarity available to growers (e.g. LWA, Soil Association, OGA)		

OPTIONAL MODULE	LEARNING OBJECTIVES	LEARNING OUTCOMES – TRAINEES WILL BE ABLE TO...	RESOURCES FOR SELF DIRECTED LEARNING
<b>Agroforestry</b>	Understand the principles of agroforestry		Download to free Agroforestry Handbook – by Soil Association, Organic Research Centre, Woodland Trust and partners <a href="http://www.soilassociation.org/farmers-growers/technicalinformation/agroforestry-on-your-farm/download-the-agroforestry-handbook/">www.soilassociation.org/farmers-growers/technicalinformation/agroforestry-on-your-farm/download-the-agroforestry-handbook/</a>
	Understand the range of different types of agroforestry, Silvoarable silvopasture, wood pasture, forest garden etc.		
	Be aware of how to approach agroforestry system design. Objective setting for the trees within a farming systems, and planning the integration of trees into farming		
	Understand how to maximising benefits to livestock, crops and trees within agroforestry systems		
	Understand how to assess economics of agroforestry systems		
	Be aware of the challenges in developing a successful agroforestry system, including capital cost, skills, harvesting and processing of products, spread of labour requirements and markets		

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