

A horticultural costings system fit for purpose

Making financial data 'fit for purpose' for small-scale growers was the mission we set ourselves as part of Organic Centre Wales's BoBL (Better Organic Business Links) project. There is an absence of tailored information on the viability and productivity of market gardens and small-scale horticultural holdings growing for supply chains in Wales (but of course not just Wales!). The problem is exacerbated by a lack of financial skills/knowledge of new entrants, for example on setting prices, estimating the cost of production and uncertainty about choosing a business model. At the Organic Research Centre (ORC), we have been wanting to include material in the Organic Farm Management Handbook that will be more appropriate and applicable for complex small-scale horticultural systems, but have been hampered by lack of data and funds. Horticulture Wales has recently developed gross margin data and calculators for conventional field-scale production; but it doesn't take into account the lower or different input costs, higher labour requirements and the inclusion of fertility-building leys in organic systems.

However the application of standard gross margin data to small-scale horticulture remains problematic: small-scale operators can typically grow and market more than 60 different crops, often in succession throughout the season. The production of mixed salad bags (see OG29), one of the most important crops for small growers, can involve the harvest of 10 or more crops from polytunnel and field, which makes it much more difficult to work out gross margins than for a field of potatoes! Cropping areas are frequently between 100 and 1,000m², and rotations include crops for fertility-building; but standard data sets are published per hectare and assume annual harvesting rather than growing in succession. They also do not cover likely costs that are incurred when setting up a stall on a farmer's market, or setting up a box scheme.

Workshop and survey

In the last issue (OG30), we reported from the workshop we held at the Organic Producers' Conference in Solihull last November to discuss how growers approach their planning before each growing season, how they are recording their outputs, costs and how they are evaluating the financial viability of their business. To further inform the process of developing a tool, a survey was distributed to organic growers through the OGA prior to the conference (see box opposite).

Elements of crop planning

Mapping out your holding and dividing up your available land into plots that can be used as rotational blocks is an essential first start. This can be done using farm maps, enlarged on a photocopier (in a library if necessary) or digitally using aerial photos or a mapping tool such as www.magic.gov.uk. The plot or bed numbers can be superimposed on top of the plan in powerpoint, photoshop or other software tools. The maps can be used on the computer or printed out for the farm office. New maps can be used each year with the crop groups and crops allocated to the appropriate bed or plot.

Creating a crop calendar is essential: the options are again paper or electronic, or a combination of the two. Software tools are

available (see OG26), and Excel spreadsheets can be used. These can be linked to shared calendars on email clients such as Outlook or Yahoo, to set reminders for sowing dates, transplanting and harvesting - though these have to be flexible of course, according to the season and events! Some use a monthly desk calendar. Whichever system you use to keep records, it will work best when information is recorded on a regular basis - so not the night before the inspector calls! The options are:

- Keep a crop diary. Jon Goodman has a model for an online crop diary available at <http://goo.gl/y5oHrE>, developed at Daylesford as part of his Soil Association Apprenticeship. Old school paper diaries can also work well, but set-aside regular times for entering data onto the computer. Jean-Martin Fortier (The Market Gardener - reviewed in OG30) uses a loose-leaf binder for each crop and records for each cultivar, seeding, planting dates, number of beds, yields and other notes.
- Record all operations on sheets of paper adjacent to the farm plan on the office wall. This is the approach that Manchester Veg People take with a sheet per crop or field on which labour hours for operations, cultivations and so on can be recorded.
- Use GoogleDoc forms. This is an excellent option to easily input and organise data. It can be set up as an App so that a number of different workers could input their labour via a smartphone or tablet, which is then automatically recorded onto an online spreadsheet. There is a tutorial here <http://www.youtube.com/watch?v=6AXO9vnoJns&feature=youtu.be>
- Daily worksheets. There are examples of these on the Veggie Compass website: we have adapted some that can be used as part of the costings tool below. Each worker needs to fill in a paper (or electronic) sheet daily with their hours allocated to different tasks/crops which can be in greenhouse, tunnel or field, or general tasks such as cultivation or selling which are not crop specific.

Summary of survey (15 respondents)

What system do you use for accounts/tax returns? The majority are using spreadsheets and/or an accounts package: Quicken(2), Quickbooks (2), Money Manager (2), Quickfile, TAS Books, Sage.

Do you find your records useful for forward planning? Most (11) found their records useful, though 4 only sometimes.

What unit do you use most, when planning your business? The most common unit used is m² (9), followed by metre rows. Other units used were bed length and number of plants for transplanted crops. Other methods included length (5), then hectares (2) and acres (1).

What categories do you use for forward planning? Individual crops (13), place in rotation (9), plot (2), crop group (1), all depending on crop (1).

What recording system do you use for recording incomes for sales? Cash book (4), spreadsheet (8), accounts package (9).

At what frequency? Daily (6), weekly (6), monthly (5), yearly (1).

Do you record sales according to sales channels? Yes (12), No (1). A variety of outlets were listed: CSA, wholesale, retail, farmers markets; often recorded by individual customer, such as invoicing retail outlets.

Are you recording sales according to some crops or crop categories? No (3) Yes, individual crops (11). One CSA records according to shares, one records down to the level of variety in some crops. One uses crop groups "(GM, brassica, umbellifer, legume/allium, cucurbit/beet/other), then divide these into what I'm growing (e.g. brassica - mostly kale & PSB). Same for tunnels too."

What recording system do you use for costs? Cash book/paper (2), spreadsheet (6), accounts package (8).

At what frequency? Weekly most common (7), some daily (3), monthly (3) and yearly (1).

Do you attribute costs to crop categories? Mostly no (10), but 4 do. "In the sense that we record harvest times per crop", and "for example only brassicas use Enviromesh, so the mesh costs have to be paid for by the brassicas (same would be the case for polytunnels etc.). Other comments included "only direct costs" and "where possible".

We listed a number of cost categories that are commonly used in planning data. Please tick the ones you find useful and score how they are easy to record or allocate for each crop/crop category.

Direct cost for each crop. Most respondents record seed costs, growing media, crop protection, fleeces (allocated to crop category). But some things such as heat used for propagation, manure and fertility-building crops were thought to be difficult and not done.

Labour costs, casual costs paid. Less than a third of respondents recorded labour costs per activity, citing difficulties of allocating to tasks, especially when using volunteer labour. Own hours was the easiest to record/allocate.

Fixed costs/overheads. Land and rent, interest and bank charges, wages for paid labour were all recorded by many (but fewer than half the respondents found it relatively straightforward to allocate to crops).

Investment. Relatively easy to allocate to crops.

Maintenance. Again relatively easy to allocate, but fewer doing it apart from obvious jobs such as machinery repairs.

Other categories. Transport was generally thought OK to allocate; storage, communications and promotion not so easy.

Features of the costings tool

- The crop is the main unit of enterprise, but crop groupings are summarised with net margins.
- One of the fundamental features of the tool is the use of m² months. We adapted the method from Kate Collyns' Gardening for Profit, who worked out the fixed costs of her growing space, which is apportioned to the crop grown, according to the time it is in the ground. This is important as it enables us to compare a rocket crop, which might be in the ground for less than 2 months with a purple sprouting broccoli crop, which could be growing for 11 months. We like this approach as it gives more realistic costs for short-term catch crops. We use it for allocating all costs that are not crop-specific. Another way of doing this would be to allocate things such as overheads in proportion to the labour requirement of the crop, which is how the Manchester Veg People do it. Of course, a month in June, with higher light levels and temperatures, would be more valuable than a month in January; but incorporating that into the tool would require a different level of sophistication!
- Choose the level of detail you require. If it is easiest for you just to record the costs according to crop group, e.g. brassicas, alliums, salads, cucurbits, then do that; but if you prefer to enter the detail for individual crops, you can. We recognise that some operations and costs are easier to record on a field or holding basis and divided up accordingly.
- Recording labour costs is difficult, as demonstrated in the survey, but it is perhaps the most important for growers to get a handle on. We have different options for recording this and you should decide which works best for you. As with other costs you can record the level of detail you want. Many tasks

might be non-crop specific, and these should be recorded so they can be divided up amongst crops on an area basis. At one level you can just record all work on a particular crop, which is the approach that Veggie Compass takes (a project at the University of Wisconsin-Madison that involves the development of whole farm profit management tools, www.veggiecompass.com), dividing labour into non-crop specific field growing, crop specific field growing, non-crop specific harvest and packing and crop specific harvest and packing. Under our tool you could do the same, but also choose to tease out the tasks for each crop, such as: planting/drilling, tractor work, hand-weeding, pest control, crop training, irrigation, other. You could focus on one category you want to nail down, such as hand weeding; record everything; or just put it all in 'other'.

- In the tool we have chosen to allocate labour costs (total costs) according to the hours spent on that crop. This doesn't distinguish between the cost of different labour (such as volunteer/contractor/skilled employee), but gives an indication of how labour-intensive a crop is. The tool generates a figure for average cost per hour, which could be frightening as it may appear well below minimum wage! This figure is used to allocate the costs to crop or crop group.
- Fertility-building is a very important part of organic systems and I have often argued that it should be considered as a crop in its own right, and the most important crop in the rotation. Individual crop gross margins often ignore this. We list it as a crop with a negative margin and share the costs amongst the crops in the rotation. We also generate a figure to indicate the proportion of fertility-building crops in the calendar year.

The tool - step-by-step

The tool has a step-by-step approach, each step being a separate inter-linked worksheet

Step 1: Map out your holding and plan your rotation; measure out each plot. It is important that the area includes wheelings, paths and so on for comparison purposes.

Step 2: List all the crops you grow, their areas (including wheelings, paths and so on) and time in the ground. We have tried to list the most commonly grown crops and have grouped them into what we think are sensible groupings. However you might wish to enter your own crops, instead or in addition to those listed, or change the groupings as appropriate to your system and rotation. These will be entered automatically into the other sheets.

Step 3: Record your overheads here, per year, and they will be directly allocated to the crops according to space and time.

Step 4: List your investment costs here and the period of time it is sensible to spread them over. We have listed field, protected cropping and general investments separately so that they can be allocated appropriately.

Step 5: Record all direct costs that are not crop-specific, such as costs of manures. If you record these directly per the crop, then don't put them here since they would be counted twice.

Step 6: Record any costs that are directly related to the individual crops. There may be costs that are specific to a group of crops, such as fleece for brassicas, Bt for brassicas and so on. These costs can be spread evenly over those crops.

Step 7: Inputting crop by crop labour data: the more detail the better - since it will better inform costs of production - but it is a balance between ease of recording and info gained. The non-specific crop labour is divided up amongst the crops according to time spent in the ground and area of the field.

Step 8: Gathering sales data. For some outlets this is relatively easy, such as sales data from invoices to shops and restaurants; but markets can be more problematic. We have designed a form to help that involves recording what you take to market and what you bring back, and the price that the item was sold for. If the final takings are put in then the sales of all items are adjusted to fit, recognising that it can be difficult to reconcile the two, because there is a tendency to be generous with quantities weighed for customers and some produce may be sold at lower prices at the end of the day or given away.

Your summary sheet allows you to compare the cost of different crops and crop groups and their margins. You can then drill down into the detail to see where those costs are incurred and how your system can be improved.

We will be working on the tool and refining it further, and making it available online through ORC, OGA and OCW websites, very soon! Volunteers to road test it would be very welcome. We will also do a webinar and have step-by-step video instructions to make the process as painless as possible. We are hoping that it can be used to generate benchmark data, for use in the Organic Farm

Management Handbook, and for sharing between growers.

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