



# coding

4 MIGRANT WOMEN RETURNERS



# Farming and Agriculture Software

*Advanced*

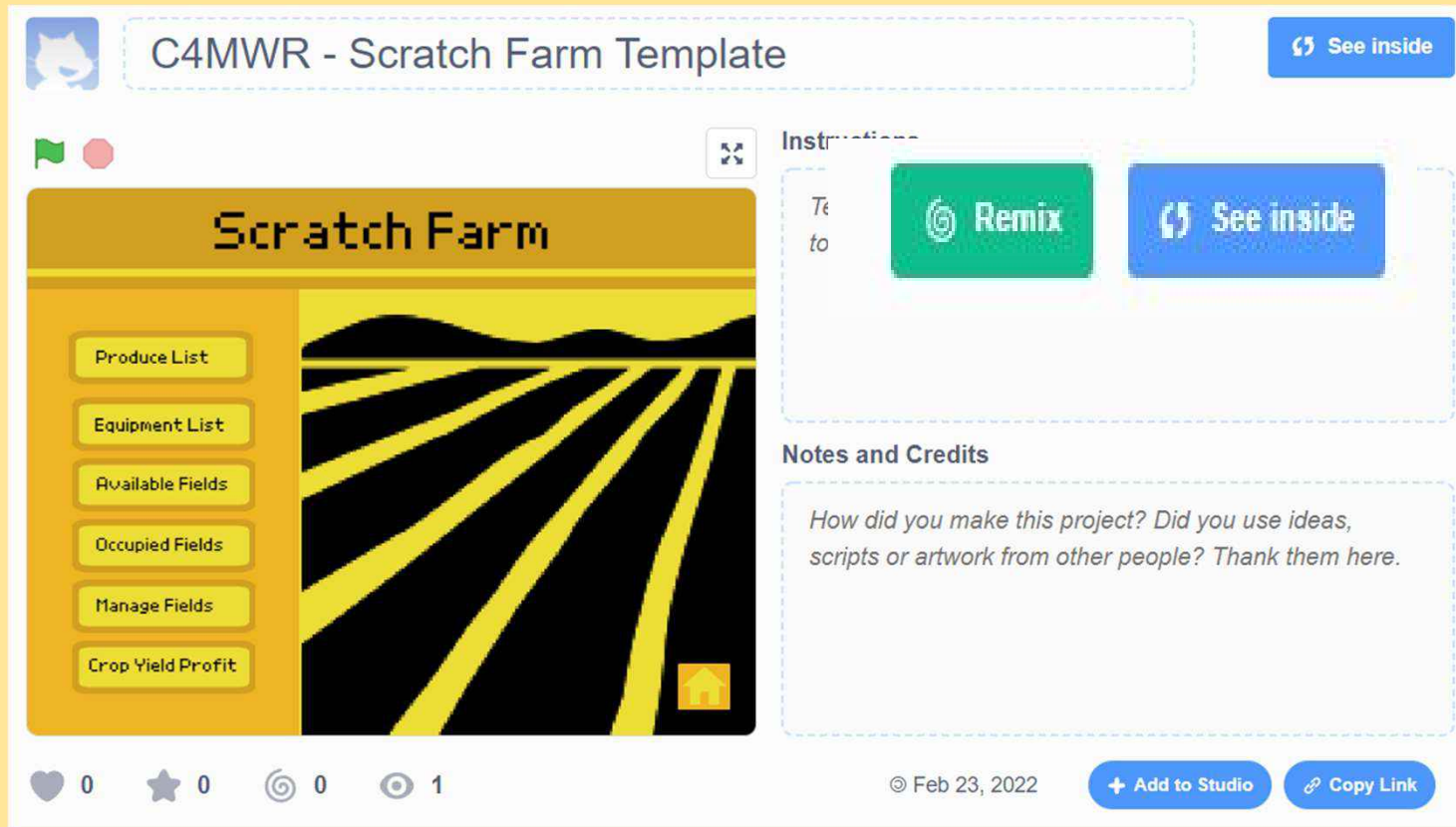
# Activity scenario summary:

In this example we will code a project which replicates the running of a **farming or agricultural business software**.

This project will help you develop an understanding how coding is used in the agricultural industry and the importance of technology in the farming sector. This project should:

- Show produce list
- Show the equipment list
- Show fields available for planting
- Show fields occupied
- Be able to harvest fields and make them available for replanting
- Calculate profit from crop yield

We are going to program how to manage the fields and how to calculate crop profit.



At this point you should have already completed the code from the beginner resource and the intermediate...

If you haven't click [here](#) to access the beginner resource!

Click [here](#) for the intermediate resource!

By the end of this lesson, your project should look like [this](#)!  
(Use this if you get stuck)

# The Menu:

You should already be familiar with the home menu from the beginner section.

In the intermediate section we will add functionality to the 5<sup>th</sup> and 6<sup>th</sup> buttons.



# Manage Fields



This button will allow the user to manage the fields by choosing which fields they would like to harvest and which fields they would like to sow seeds in.

# What will happen...


### Manage Fields

Would you like to Harvest a field or Sow seeds? (1/2)



### Manage Fields

Which field would you like to harvest?



Occupied Fields	
1	3
2	5
3	6
4	9

### Manage Fields

Which field would you like to sow?



Available Fields	
1	1
2	2
3	4
4	7
5	8

### Manage Fields

Crops successfully harvested



Occupied Fields	
1	3
2	6
3	9

+ length 3 =



### Manage Fields

Crop successfully planted on the field!



Available Fields	
1	1
2	2
3	4
4	8

+ length 4 =



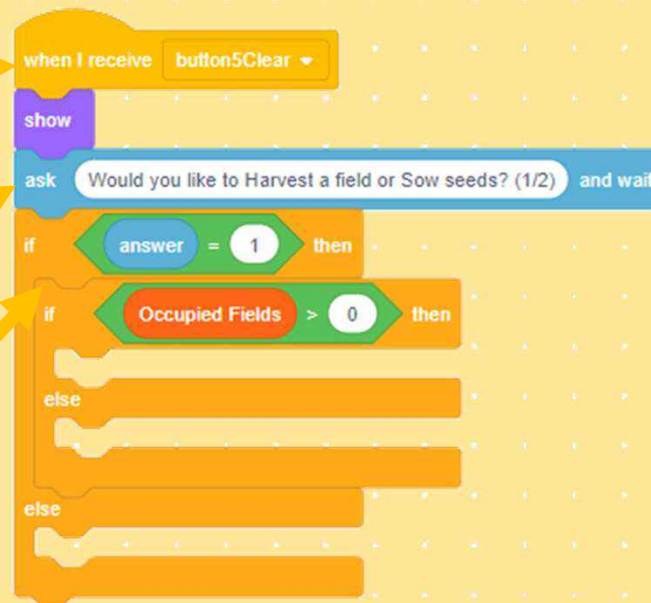
# Step 1

When the 'Manage Fields' button is clicked

When the button is clicked this code will run and the screen is cleared.

The ask block gives the user two choices, harvesting or sewing. Due to this we need an IF ELSE block checking if the answer input is '1'.

If it is, then another IF ELSE block is needed to check that the list Occupied fields is greater than zero.



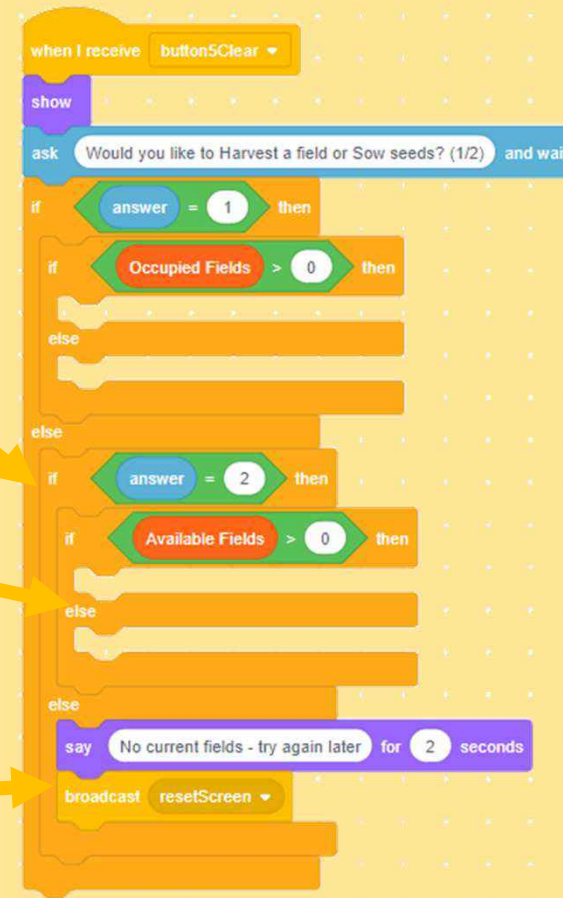


# Step 2

Another IF ELSE block is then needed for if the user inputs '2'.

If the input is '2' then another IF ELSE block is needed to check if the list for Available fields is greater than 0.

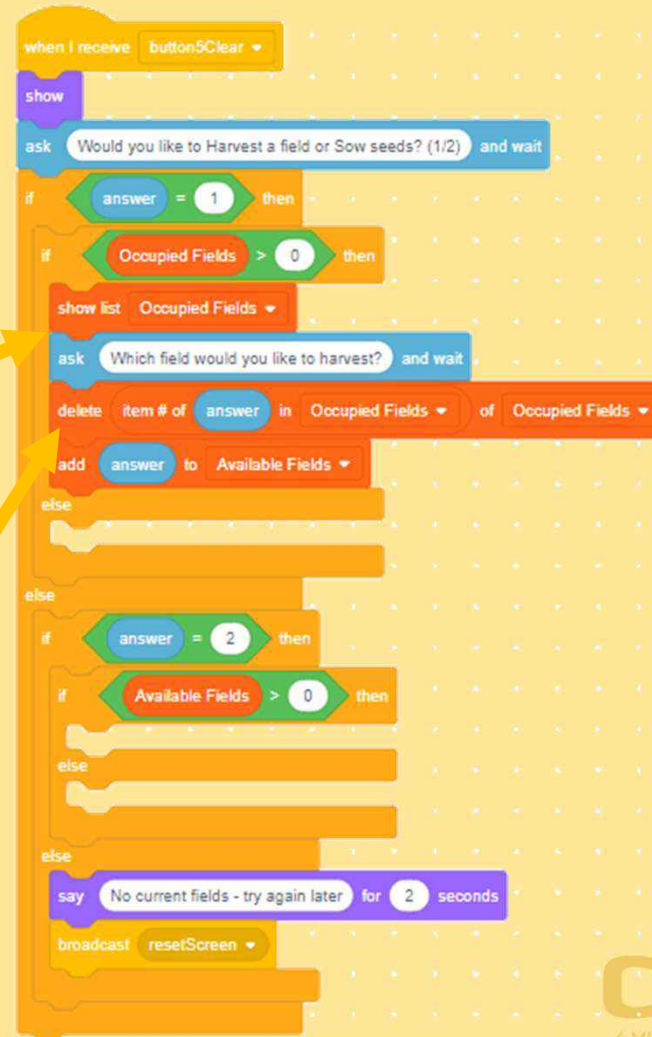
If neither of the two inputs is entered than an error message comes up before resetting the screen to the menu.



# Step 3

If the list of Occupied Fields is greater than zero, then the 'Occupied Fields' list is displayed to the user along with a message asking which field they would like to harvest.

Once the user has input a field number than that number is deleted from 'Occupied Fields' and added to 'Available Fields'.



```
when I receive button5Clear
  show
  ask Would you like to Harvest a field or Sow seeds? (1/2) and wait
  if answer = 1 then
    if Occupied Fields > 0 then
      show list Occupied Fields
      ask Which field would you like to harvest? and wait
      delete item # of answer in Occupied Fields of Occupied Fields
      add answer to Available Fields
    else
      // empty block
    else
      if answer = 2 then
        if Available Fields > 0 then
          // empty block
        else
          // empty block
        else
          say No current fields - try again later for 2 seconds
          broadcast resetScreen
```

# Step 4

A message is then shown to confirm successful harvesting and the screen resets to the menu.

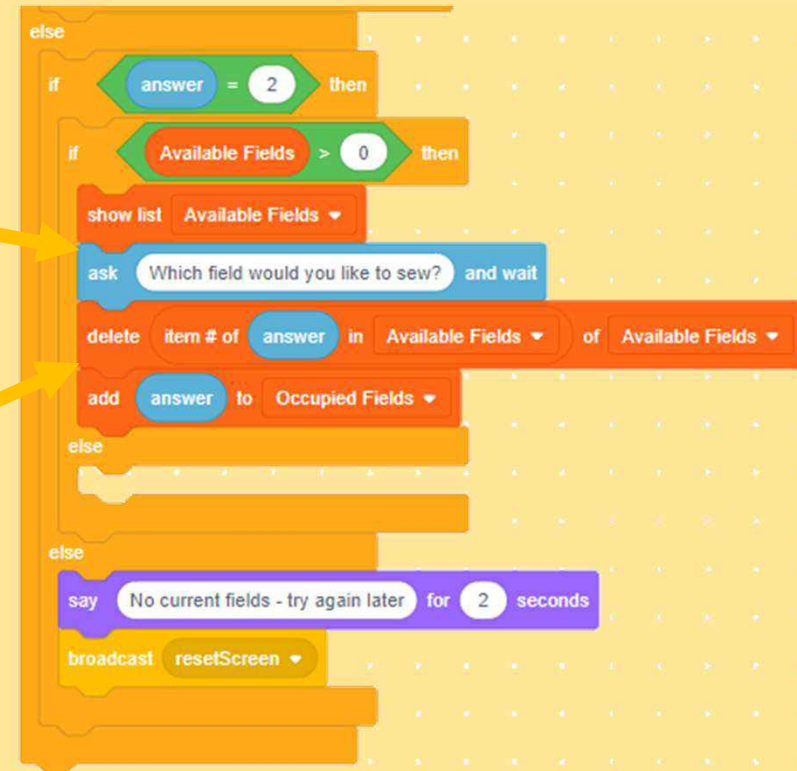
Otherwise, an error message shows up and the screen resets back to the menu.

```
when I receive buttonSClear
  show
  ask Would you like to Harvest a field or Sow seeds? (1/2) and wait
  if answer = 1 then
    if Occupied Fields > 0 then
      show list Occupied Fields
      ask Which field would you like to harvest? and wait
      delete item # of answer in Occupied Fields of Occupied Fields
      add answer to Available Fields
      say Crops successfully harvested for 2 seconds
      broadcast resetScreen
    else
      say No current fields - try again later for 2 seconds
      broadcast resetScreen
  else
```

# Step 5

If the list of Available beds is greater than zero, then the 'Available Fields' list is displayed to the user along with a message asking which field they would like to sew.

Once the user has input a field number than that number is deleted from 'Available Fields' and added to 'Occupied Fields'.

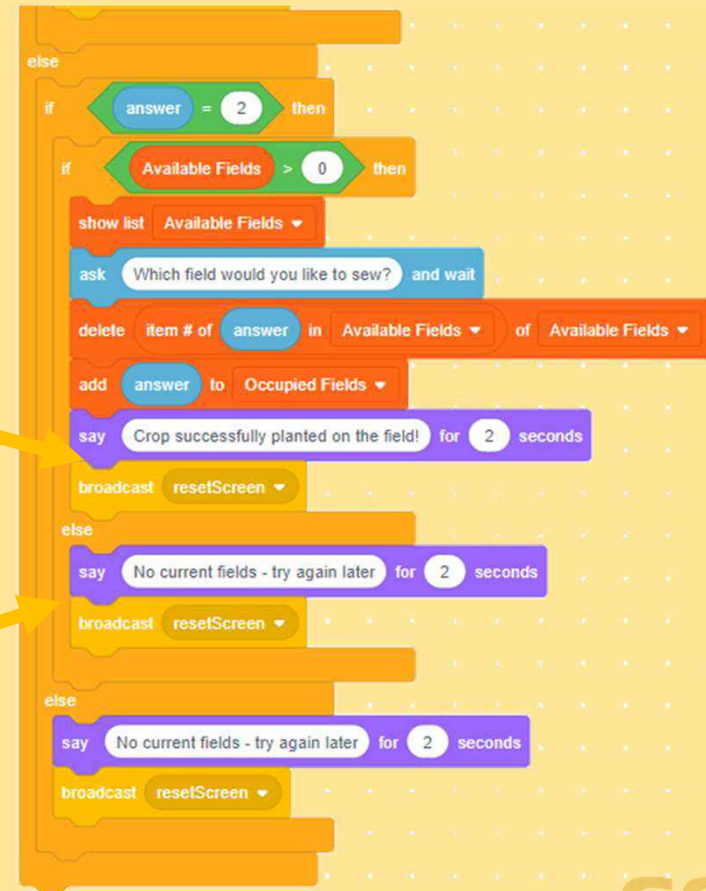


```
else
  if answer = 2 then
    if Available Fields > 0 then
      show list Available Fields
      ask Which field would you like to sew? and wait
      delete item # of answer in Available Fields of Available Fields
      add answer to Occupied Fields
    else
      say No current fields - try again later for 2 seconds
      broadcast resetScreen
```

# Step 6

A message is then shown to confirm successful crop planting and the screen resets to the menu.

Otherwise, an error message shows up and the screen resets back to the menu.



```
else
  if answer = 2 then
    if Available Fields > 0 then
      show list Available Fields
      ask Which field would you like to sew? and wait
      delete item # of answer in Available Fields of Available Fields
      add answer to Occupied Fields
      say Crop successfully planted on the field! for 2 seconds
      broadcast resetScreen
    else
      say No current fields - try again later for 2 seconds
      broadcast resetScreen
  else
    say No current fields - try again later for 2 seconds
    broadcast resetScreen
```

# Manage Fields



This button will allow the user to calculate the profit of the crops grown on the farm.

# What will happen...

### Crop Yield Profit

What is the ID of the crop grown?



Produce	Produce Seed Cost (per hectare)	Produce Value (per ton)
1 Wheat		1 215
2 Barley	1 50	2 300
3 Corn	2 60	3 120
4 Maize	3 45	4 400
5 Rice	4 80	5 200
	5 20	

### Crop Yield Profit

How much produce was grown (per ton)?



Produce	Produce Seed Cost (per hectare)	Produce Value (per ton)
1 Wheat		1 215
2 Barley	1 50	2 300
3 Corn	2 60	3 120
4 Maize	3 45	4 400
5 Rice	4 80	5 200
	5 20	

### Crop Yield Profit

Did you grow any more produce? (Y/N)



Produce	Produce Seed Cost (per hectare)	Produce Value (per ton)
1 Wheat		1 215
2 Barley	1 50	2 300
3 Corn	2 60	3 120
4 Maize	3 45	4 400
5 Rice	4 80	5 200
	5 20	

### Crop Yield Profit

The total Crop Profit is £380



Produce	Produce Seed Cost (per hectare)	Produce Value (per ton)
1 Wheat		1 215
2 Barley	1 50	2 300
3 Corn	2 60	3 120
4 Maize	3 45	4 400
5 Rice	4 80	5 200
	5 20	

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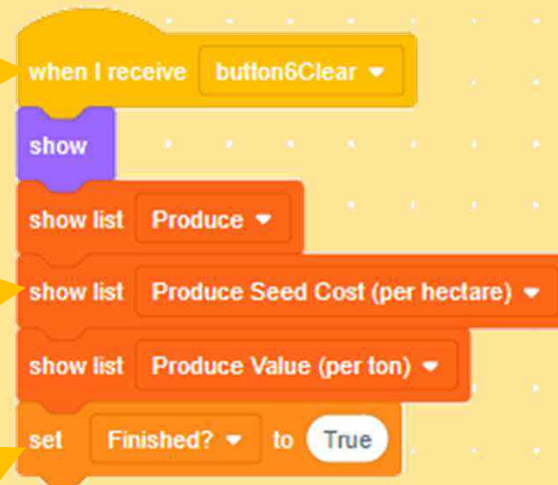
# Step 1

When the 'Crop Yield Profit' button is clicked

When the button is clicked this code will run and the screen is cleared.

Each of the lists which hold the values for Produce, Produce Value and Produce Seed Cost are shown.

The variable 'Finished?' is set to true, meaning that unless the command is met the code will keep running.



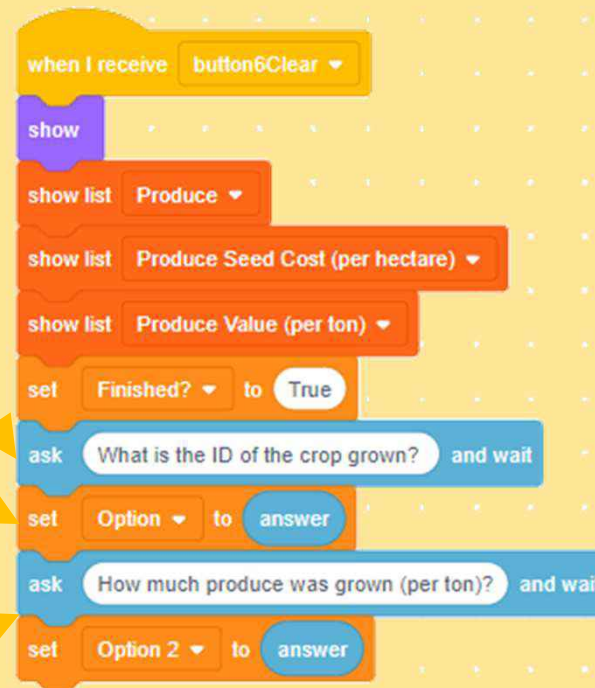


# Step 2

The ASK block waits for the user to input the ID of the crop they have grown.

The answer input by the user is stored in the variable 'answer' which we reassign to the variable 'Option'.

The same process then happens again but we are looking for the user to put in the amount of produce grown and that answer is stored in the variable 'Option2'.



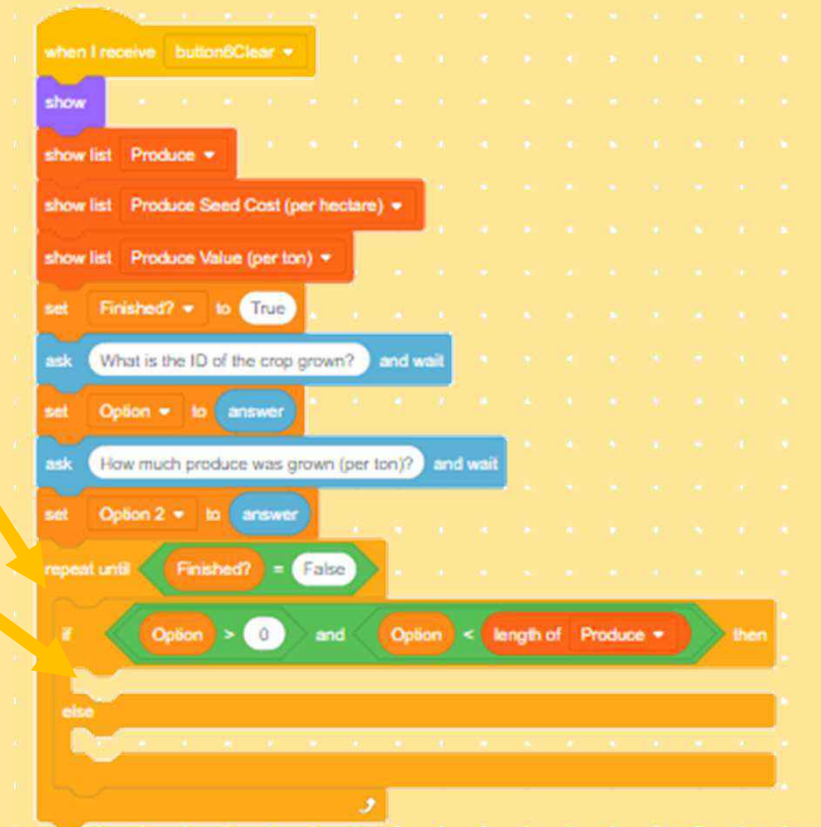
```
when I receive button6Clear
show
show list Produce
show list Produce Seed Cost (per hectare)
show list Produce Value (per ton)
set Finished? to True
ask What is the ID of the crop grown? and wait
set Option to answer
ask How much produce was grown (per ton)? and wait
set Option 2 to answer
```

The image shows a Scratch script on a yellow grid background. The script starts with a yellow 'when I receive' block connected to a 'button6Clear' dropdown. This is followed by a purple 'show' block, then three orange 'show list' blocks with dropdown menus for 'Produce', 'Produce Seed Cost (per hectare)', and 'Produce Value (per ton)'. Next is an orange 'set' block for 'Finished?' to 'True'. Then a blue 'ask' block with the text 'What is the ID of the crop grown?' and 'and wait'. This is followed by an orange 'set' block for 'Option' to 'answer'. Then another blue 'ask' block with the text 'How much produce was grown (per ton)?' and 'and wait'. Finally, an orange 'set' block for 'Option 2' to 'answer'. Three yellow arrows point from the text boxes on the left to the 'ask' blocks in the script.

# Step 3

A REPEAT UNTIL block has then been used with the values needing to meet the expectation of 'Finished?' being False.

The IF ELSE block is used to check if the Produce ID given is valid when compare to the list 'Produce'.



```
when I receive button6Clear
show
show list Produce
show list Produce Seed Cost (per hectare)
show list Produce Value (per ton)
set Finished? to True
ask What is the ID of the crop grown? and wait
set Option to answer
ask How much produce was grown (per ton)? and wait
set Option 2 to answer
repeat until Finished? = False
if Option > 0 and Option < length of Produce then
else
```

# Step 4

If the Produce ID is valid then we set the variable 'Final Crop Cost' to the matching Produce Value as the ID entered by the user. (e.g. the ID for Wheat is '1' so the matching Produce value would be 215)

We also match the produce ID to its matching Produce Seed cost before assigning that to the variable 'Final Seed Cost'.

From this we calculate 'Crop 1' by multiplying the 'Final Crop Cost' by how much produce was grown - 'Option2' - this is then the value that has the 'Final Seed Cost' subtracted for the 'Total Crop Cost'.

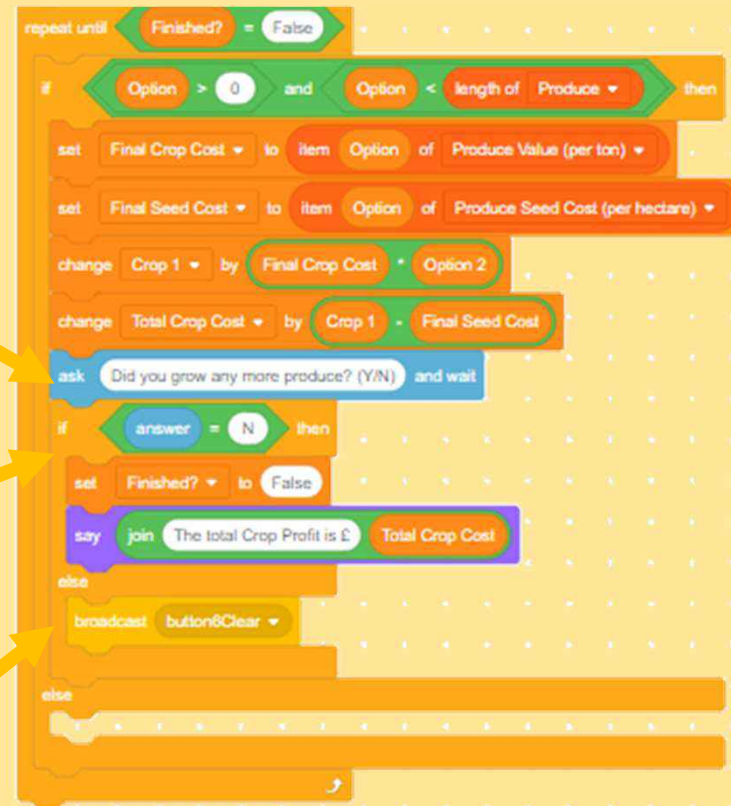


# Step 5

Using another ASK block we check if the user has grown anymore produce.

If the user inputs 'N', then the variable 'Finished?' is set to false, breaking the loop, and a message is said which displays the total profit from the crops

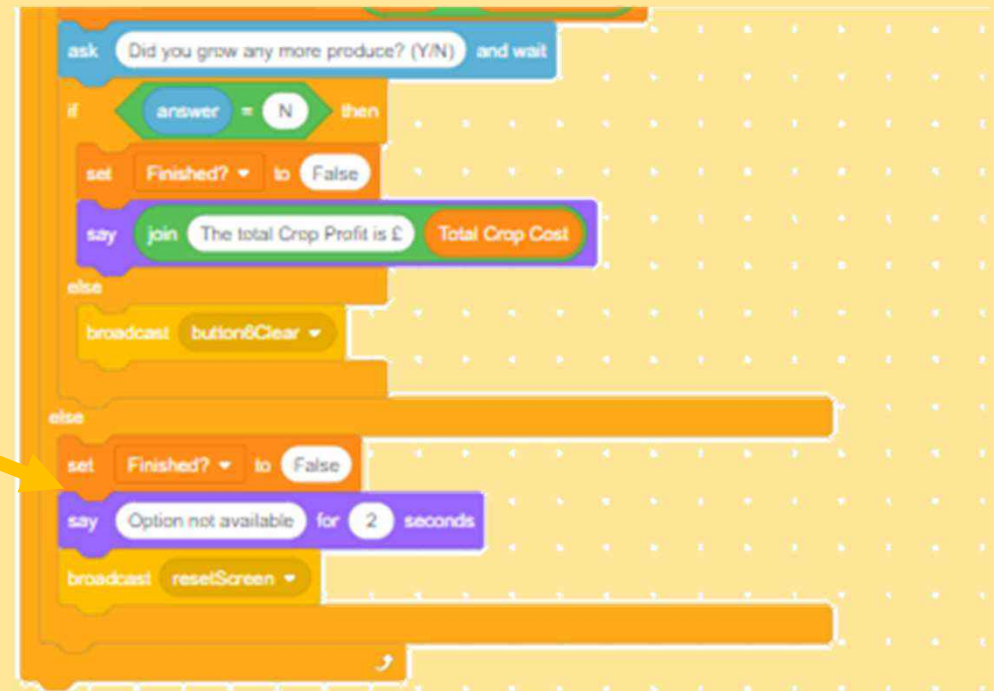
If the user input is 'Y', then the code starts from the beginning again, since 'Finished?' is still True.



```
repeat until Finished? = False
  if Option > 0 and Option < length of Produce then
    set Final Crop Cost to item Option of Produce Value (per ton)
    set Final Seed Cost to item Option of Produce Seed Cost (per hectare)
    change Crop 1 by Final Crop Cost * Option 2
    change Total Crop Cost by Crop 1 - Final Seed Cost
    ask Did you grow any more produce? (Y/N) and wait
    if answer = N then
      set Finished? to False
      say join The total Crop Profit is £: Total Crop Cost
    else
      broadcast button8Clear
    else
      [ ]
```

# Step 6

If neither 'Y', or 'N', is input then an error message comes up along with the variable 'Finished?' being set to false to avoid any further loops, before the screen resets to the menu.



```
ask Did you grow any more produce? (Y/N) and wait
if answer = N then
  set Finished? to False
  say join The total Crop Profit is £ Total Crop Cost
else
  broadcast button6Clear
else
  set Finished? to False
  say Option not available for 2 seconds
  broadcast resetScreen
```

**Congratulations!**

**You have completed the farming  
and agriculture booking  
software.**

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