

Date: 2018/12/28

Author: Murray Scown

Purpose: Processing crop areas and yields from EarthStat

1. Downloaded data from <http://www.earthstat.org/harvested-area-yield-175-crops/>
2. Sorted crop types to align with Eurostat categories (CROPNAME is the code given in EarthStat, OUR_CODE is the crop code used in D1 database metadata and reflects the Eurostat categories). Note: not all crops are processed here, only those who have NUTS0 data in Eurostat (e.g., cereals have NUTS2 data in Eurostat, which is used preferentially over EarthStat data).

CROPNAME	Cropname_FAO	GROUP	OUR_CODE
berrynes	Berries Nes	Fruit	berries
blueberry	Blueberries	Fruit	berries
cranberry	Cranberries	Fruit	berries
currant	Currants	Fruit	berries
gooseberry	Gooseberries	Fruit	berries
rasberry	Raspberries	Fruit	berries
strawberry	Strawberries	Fruit	berries
cabbage	Cabbages and other brassicas	Vegetables&Melons	brassic
cauliflower	Cauliflowers and broccoli	Vegetables&Melons	brassic
citrusnes	Citrus fruit, nes	Fruit	citrus
grapefruitetc	Grapefruit (inc. pomelos)	Fruit	citrus
lemonlime	Lemons and limes	Fruit	citrus
orange	Oranges	Fruit	citrus
tangetc	Tangerines, mandarins, clem.	Fruit	citrus
apple	Apples	Fruit	frtrees
apricot	Apricots	Fruit	frtrees
cherry	Cherries	Fruit	frtrees
peachetc	Peaches and nectarines	Fruit	frtrees
pear	Pears	Fruit	frtrees
plum	Plums and sloes	Fruit	frtrees
quince	Quinces	Fruit	frtrees
sourcherry	Sour cherries	Fruit	frtrees
stonefruitnes	Stone fruit, nes	Fruit	frtrees
grape	Grapes	Fruit	grapes
artichoke	Artichokes	Vegetables&Melons	greens
asparagus	Asparagus	Vegetables&Melons	greens
lettuce	Lettuce and chicory	Vegetables&Melons	greens
spinach	Spinach	Vegetables&Melons	greens
almond	Almonds, with shell	Treenuts	nuts
brazil	Brazil nuts, with shell	Treenuts	nuts
cashew	Cashew nuts, with shell	Treenuts	nuts
chestnut	Chestnuts	Treenuts	nuts
hazelnut	Hazelnuts, with shell	Treenuts	nuts
nutnes	Nuts, nes	Treenuts	nuts

pistachio	Pistachios	Treenuts	nuts
walnut	Walnuts, with shell	Treenuts	nuts
olive	Olives	Oilcrops	olives
vegetablenes	Vegetables fresh nes	Vegetables&Melons	oth_veg
greenbean	Beans, green	Vegetables&Melons	peas
greenbroadbean	Leguminous vegetables, nes	Vegetables&Melons	peas
greenpea	Peas, green	Vegetables&Melons	peas
stringbean	String beans	Vegetables&Melons	peas
carrot	Carrots and turnips	Vegetables&Melons	rootveg
garlic	Garlic	Vegetables&Melons	rootveg
greenonion	Onions (inc. shallots), green	Vegetables&Melons	rootveg
onion	Onions, dry	Vegetables&Melons	rootveg
avocado	Avocados	Fruit	tropfr
banana	Bananas	Fruit	tropfr
date	Dates	Fruit	tropfr
fig	Figs	Fruit	tropfr
kiwi	Kiwi fruit	Fruit	tropfr
mango	Mangoes, mangosteens, guavas	Fruit	tropfr
papaya	Papayas	Fruit	tropfr
pineapple	Pineapples	Fruit	tropfr
plantain	Plantains	Fruit	tropfr
tropicalnes	Fruit, tropical fresh nes	Fruit	tropfr
chilleetc	Chillies and peppers, green	Vegetables&Melons	vfruits
cucumberetc	Cucumbers and gherkins	Vegetables&Melons	vfruits
eggplant	Eggplants (aubergines)	Vegetables&Melons	vfruits
melonetc	Other melons (inc.cantaloupes)	Vegetables&Melons	vfruits
okra	Okra	Vegetables&Melons	vfruits
pumpkinetc	Pumpkins, squash and gourds	Vegetables&Melons	vfruits
tomato	Tomatoes	Vegetables&Melons	vfruits
watermelon	Watermelons	Vegetables&Melons	vfruits

3. Summed all production areas and yields for TIFFs within our categories

Berries:

"berrynes_HarvestedAreaHectares.tif" + "blueberry_HarvestedAreaHectares.tif" + "cranberry_HarvestedAreaHectares.tif" + "currant_HarvestedAreaHectares.tif" + "gooseberry_HarvestedAreaHectares.tif" + "rasberry_HarvestedAreaHectares.tif" + "strawberry_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\berries_a

"berrynes_YieldPerHectare.tif" + "blueberry_YieldPerHectare.tif" + "cranberry_YieldPerHectare.tif" + "currant_YieldPerHectare.tif" + "gooseberry_YieldPerHectare.tif" + "rasberry_YieldPerHectare.tif" + "strawberry_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\berries_y

Brassicas:

"cauliflower_HarvestedAreaHectares.tif" + "cabbage_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\brassic_a



"cauliflower_YieldPerHectare.tif" + "cabbage_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\brassic_y



Citrus:

"tangetc_HarvestedAreaHectares.tif" + "orange_HarvestedAreaHectares.tif" + "lemonlime_HarvestedAreaHectares.tif" + "grapefruitetc_HarvestedAreaHectares.tif" + "citrusnes_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\citrus_a



"tangetc_YieldPerHectare.tif" + "orange_YieldPerHectare.tif" + "lemonlime_YieldPerHectare.tif" + "grapefruitetc_YieldPerHectare.tif" + "citrusnes_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\citrus_y



Fruit trees:

"stonefruitnes_HarvestedAreaHectares.tif" + "sourcherry_HarvestedAreaHectares.tif" + "quince_HarvestedAreaHectares.tif" + "plum_HarvestedAreaHectares.tif" + "pear_HarvestedAreaHectares.tif" + "peachetc_HarvestedAreaHectares.tif" + "cherry_HarvestedAreaHectares.tif" + "apricot_HarvestedAreaHectares.tif" + "apple_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\frtrees_a



"stonefruitnes_YieldPerHectare.tif" + "sourcherry_YieldPerHectare.tif" + "quince_YieldPerHectare.tif" + "plum_YieldPerHectare.tif" + "pear_YieldPerHectare.tif" + "peachetc_YieldPerHectare.tif" + "cherry_YieldPerHectare.tif" + "apricot_YieldPerHectare.tif" + "apple_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\frtrees_y



Stalked and leafy greens:

"spinach_HarvestedAreaHectares.tif" + "lettuce_HarvestedAreaHectares.tif" + "asparagus_HarvestedAreaHectares.tif" + "artichoke_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\greens_a



"spinach_YieldPerHectare.tif" + "lettuce_YieldPerHectare.tif" + "asparagus_YieldPerHectare.tif" + "artichoke_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\greens_y



Nuts:

"walnut_HarvestedAreaHectares.tif" + "pistachio_HarvestedAreaHectares.tif" + "nutnes_HarvestedAreaHectares.tif" + "hazelnut_HarvestedAreaHectares.tif" + "chestnut_HarvestedAreaHectares.tif" + "cashew_HarvestedAreaHectares.tif" + "brazil_HarvestedAreaHectares.tif" + "almond_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\nuts_a



"walnut_YieldPerHectare.tif" + "pistachio_YieldPerHectare.tif" + "nutnes_YieldPerHectare.tif" + "hazelnut_YieldPerHectare.tif" + "chestnut_YieldPerHectare.tif" + "cashew_YieldPerHectare.tif" + "brazil_YieldPerHectare.tif" + "almond_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\nuts_y



Peas:

"stringbean_HarvestedAreaHectares.tif" + "greenpea_HarvestedAreaHectares.tif" + "greenbroadbean_HarvestedAreaHectares.tif" + "greenbean_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\peas_a



"stringbean_YieldPerHectare.tif" + "greenpea_YieldPerHectare.tif" + "greenbroadbean_YieldPerHectare.tif" + "greenbean_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\peas_y



Root vegetables:

"onion_HarvestedAreaHectares.tif" + "greenonion_HarvestedAreaHectares.tif" + "garlic_HarvestedAreaHectares.tif" + "carrot_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\rootveg_a



"onion_YieldPerHectare.tif" + "greenonion_YieldPerHectare.tif" + "garlic_YieldPerHectare.tif" + "carrot_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\rootveg_y



Tropical fruits:

"avocado_HarvestedAreaHectares.tif" + "banana_HarvestedAreaHectares.tif" + "date_HarvestedAreaHectares.tif" + "fig_HarvestedAreaHectares.tif" + "kiwi_HarvestedAreaHectares.tif" + "mango_HarvestedAreaHectares.tif" + "papaya_HarvestedAreaHectares.tif" + "pineapple_HarvestedAreaHectares.tif" + "plantain_HarvestedAreaHectares.tif" + "tropicalnes_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\tropfr_a



"avocado_YieldPerHectare.tif" + "banana_YieldPerHectare.tif" + "date_YieldPerHectare.tif" + "fig_YieldPerHectare.tif" + "kiwi_YieldPerHectare.tif" + "mango_YieldPerHectare.tif" + "papaya_YieldPerHectare.tif" + "pineapple_YieldPerHectare.tif" + "plantain_YieldPerHectare.tif" + "tropicalnes_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\tropfr_y



Vegetable fruits:

"watermelon_HarvestedAreaHectares.tif" + "tomato_HarvestedAreaHectares.tif" + "pumpkinetc_HarvestedAreaHectares.tif" + "okra_HarvestedAreaHectares.tif" + "melonetc_HarvestedAreaHectares.tif" + "eggplant_HarvestedAreaHectares.tif" + "cucumberetc_HarvestedAreaHectares.tif" + "chilleetc_HarvestedAreaHectares.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\vfruits_a



"watermelon_YieldPerHectare.tif" + "tomato_YieldPerHectare.tif" + "pumpkinetc_YieldPerHectare.tif" + "okra_YieldPerHectare.tif" + "melonetc_YieldPerHectare.tif" + "eggplant_YieldPerHectare.tif" + "cucumberetc_YieldPerHectare.tif" + "chilleetc_YieldPerHectare.tif"

Output raster

C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\vfruits_y



4. Created a NUTS2 grid with same cell size and extent as crop grids

Polygon to Raster

Input Features
NUTS_RG_01M_2013_3035_LEVEL_2

Value field
NUTS_ID

Output Raster Dataset
C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\nuts2_grid_earthstat

Cell assignment type (optional)
MAXIMUM_COMBINED_AREA

Priority field (optional)
NONE

Cellsize (optional)
C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\Intermediate_processing_files\EarthStat_crops_select\berries_a

5. Calculate zonal statistics as table (SUM for sum of areas; MEAN for average yield)

	Input raster or feature	Zone field	Input value raster	Output table	Ignore	Statistics type
1	nuts2_grid_earthstat	NUTS_ID	berries_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_berries_a	true	SUM
2	nuts2_grid_earthstat	NUTS_ID	brassic_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_brassic_a	true	SUM
3	nuts2_grid_earthstat	NUTS_ID	citrus_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_citrus_a	true	SUM
4	nuts2_grid_earthstat	NUTS_ID	ftrees_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_ftrees_a	true	SUM
5	nuts2_grid_earthstat	NUTS_ID	greens_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_greens_a	true	SUM
6	nuts2_grid_earthstat	NUTS_ID	nuts_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_nuts_a	true	SUM
7	nuts2_grid_earthstat	NUTS_ID	peas_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_peas_a	true	SUM
8	nuts2_grid_earthstat	NUTS_ID	rootveg_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_rootveg_a	true	SUM
9	nuts2_grid_earthstat	NUTS_ID	tropfr_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_tropfr_a	true	SUM
10	nuts2_grid_earthstat	NUTS_ID	vfuits_a	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_vfuits_a	true	SUM
11	nuts2_grid_earthstat	NUTS_ID	grape_HarvestedAreaHectares.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_grapes_a	true	SUM
12	nuts2_grid_earthstat	NUTS_ID	olive_HarvestedAreaHectares.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_olives_a	true	SUM
13	nuts2_grid_earthstat	NUTS_ID	vegetablenes_HarvestedAreaHectares.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_oth_veg_a	true	SUM
14	nuts2_grid_earthstat	NUTS_ID	berries_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_berries_y	true	MEAN
15	nuts2_grid_earthstat	NUTS_ID	brassic_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_brassic_y	true	MEAN
16	nuts2_grid_earthstat	NUTS_ID	citrus_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_citrus_y	true	MEAN
17	nuts2_grid_earthstat	NUTS_ID	ftrees_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_ftrees_y	true	MEAN
18	nuts2_grid_earthstat	NUTS_ID	greens_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_greens_y	true	MEAN
19	nuts2_grid_earthstat	NUTS_ID	nuts_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_nuts_y	true	MEAN
20	nuts2_grid_earthstat	NUTS_ID	peas_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_peas_y	true	MEAN
21	nuts2_grid_earthstat	NUTS_ID	rootveg_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_rootveg_y	true	MEAN
22	nuts2_grid_earthstat	NUTS_ID	tropfr_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_tropfr_y	true	MEAN
23	nuts2_grid_earthstat	NUTS_ID	vfuits_y	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_vfuits_y	true	MEAN
24	nuts2_grid_earthstat	NUTS_ID	grape_YieldPerHectare.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_grapes_y	true	MEAN
25	nuts2_grid_earthstat	NUTS_ID	olive_YieldPerHectare.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_olives_y	true	MEAN
26	nuts2_grid_earthstat	NUTS_ID	vegetablenes_YieldPerHectare.tif	C:\Users\mu5106sc\Dropbox\STAGS\D1_Database\EU_Farming_Systems_20181015.gdb\crop_oth_veg_y	true	MEAN