IFPRI's Spatial Production Allocation Model (SPAM)

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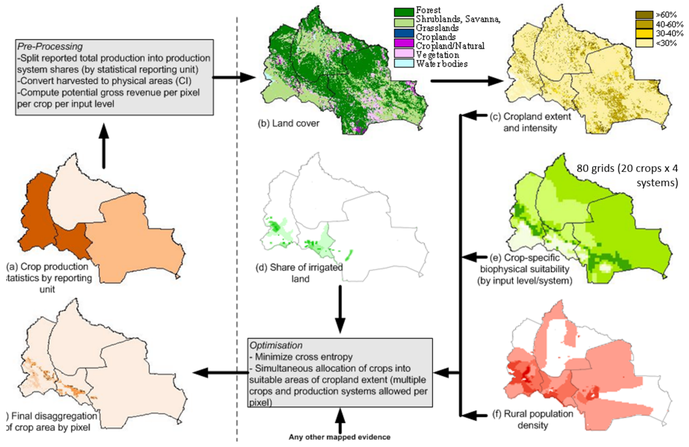
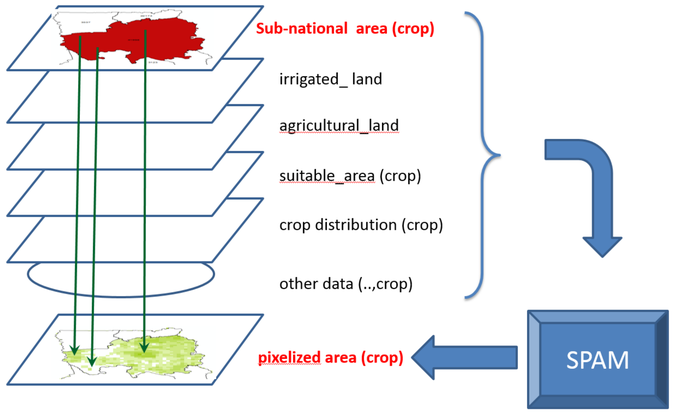
G·E·O·S·H·A·R·E

Drawing on a variety of inputs, SPAM uses an entropy-based, data-fusion approach to "plausibly" assess cropping system distribution and performance at a "meso-gridded" scale: 5-minute globally, 30-seconds at country level (if data available).

1. Path From Admin Units to Pixels



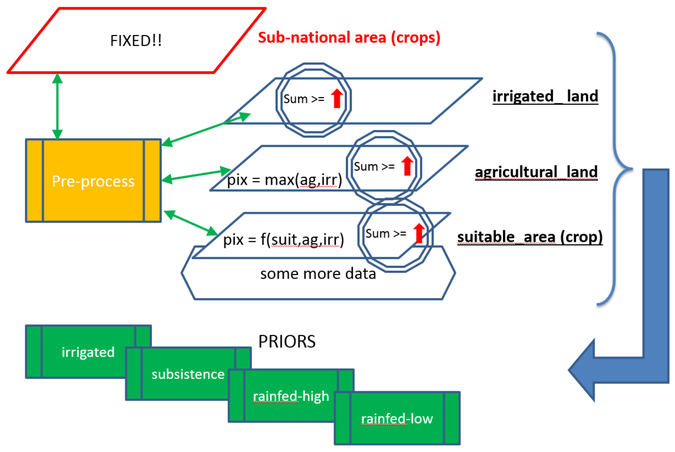
2. Spatial Production Allocation Model (SPAM)



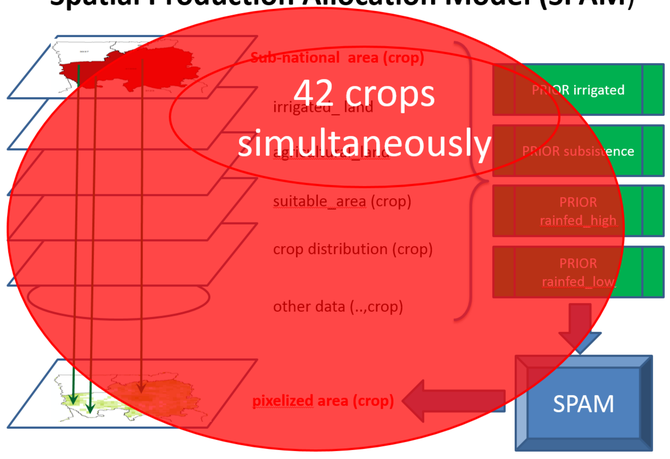
SPAM crops

1	wheat
2	rice
3	maize
4	barley
5	pearl millet
6	finger millet
7	sorghum
8	other cereals
9	potato
10	sweet potato
11	yams
12	cassava
13	other roots&tubers
14	bean
15	chickpea
16	cowpea
17	pigeon pea
18	lentil
19	other pulses
20	soybean
21	groundnut
22	coconut
23	oil palm
24	sunflower
25	rapeseed
26	sesame see
27	other oilcrops
28	sugarcane
29	sugar beet
30	cotton
31	other fibre crops
32	coffee arabica
33	coffee robusta
34	cocoa
35	tea
36	tobacco
37	banana
38	plantain
39	tropical fruits
40	temperate fruits
41	vegetables
42	rest of crops

3. Behind the scene adjustments/calculations



4. Spatial Production Allocation Model (SPAM)



Challenges

- Different sources -> 'contradictory' information
- Raster data at same scale
- Sub-national data complete, at least level1, better level2
- Conform national crops -> FAO/SPAM crops
- Consistencies between layers – constraints met
  ag_land >= stats, irr >= crop_irr, suit_land >= ag_land >= stats
- Cropping intensities & production systems shares consistent with data and model
- Validation of results

Opportunities

- Use data at larger scale – 10x10 km -> 1x1 km
- Use most recent data - statistics, ag_land, irrigation, distribution, administrative units
- Use national/sub-national prices
- Change crop list – expand/reduce (suitabilities?)
- Proprietory suitability conditions (modify model)
- Teaching tool for GIS, modelling, GAMS
- Validation 'easier' at large scale, reduced area

Validation

- Validation process by other CGIAR centers (e.g. IRRI, CIAT, ILRI, CIP, CYMMT). Each takes the mandate crops.
- Crop map view parties by local experts and agronomists
- Crowd-sourcing on the dedicated website (mapSPAM.info)

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