



Yield Gap Analysis for Cereals Production in Nigeria

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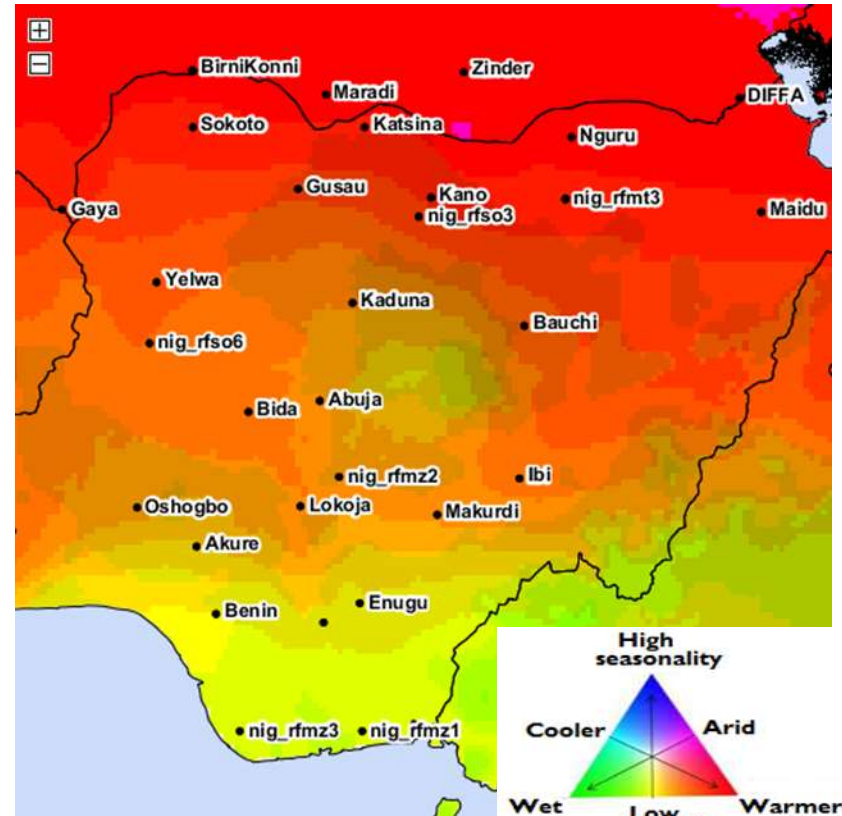
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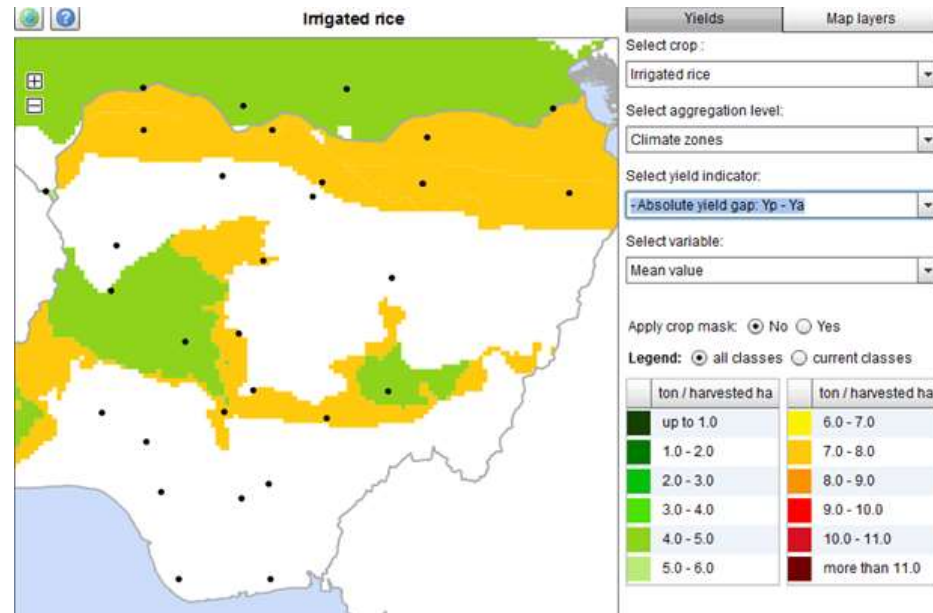
Climate and Agroecology

- Nigeria lies along lat $4^{\circ} 1'$ to $13^{\circ} 9'$ N and long $2^{\circ} 2'$ to $14^{\circ} 30'$ E
- Six distinct agro-ecological zones transiting in south-north direction
- Climate has strong latitudinal zones
- Distinct wet and dry season for most parts
- Annual rainfall varies from 500 mm in the Sahel savanna zone to about 3000 mm in Mangrove Swamp zone
- Length of rainy season varies from 3 mths in Sahel to all-year round in the Mangrove zones
- Strong seasonality in rainfall and temperature northwards
- Montane climate around Jos Plateau and Cameroun Mountains



Irrigated Rice

- Produced in irrigated areas of Chad Basin and the flood plains of Rivers Niger and Benue and their tributaries
- Harvested area: 24,300 ha
- Average water limited yield: 9.1 t/ha (cv of 1.9%)
- Actual yield: 2.6 t/ha
- Yield gap: 6.4 t/ha
- Yield gap range: 2.0 – 8.0 t/ha

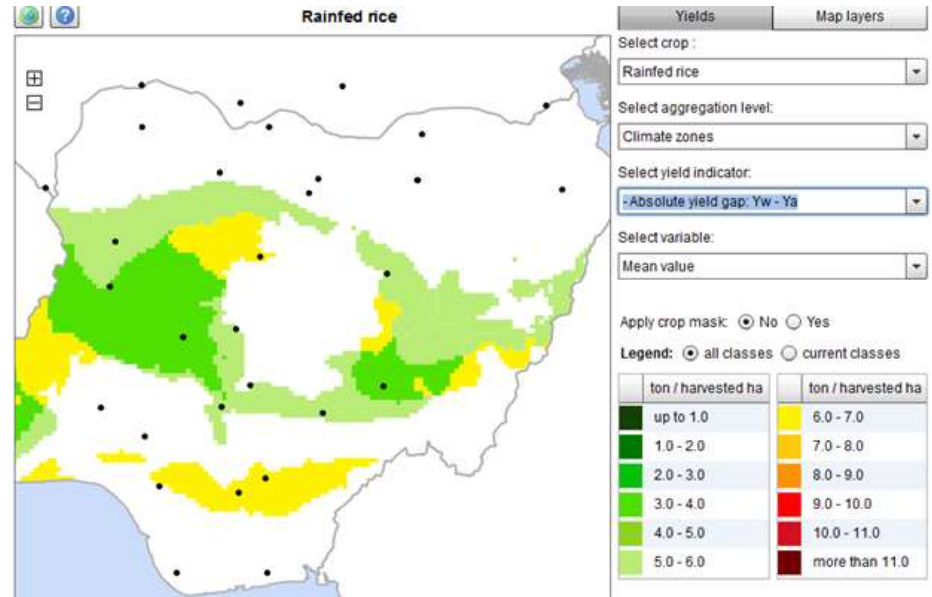


Constraints

Inadequate use of inputs
Inadequate weed control
Pest infestation
Poor water control
Soil fertility – salinisation and nutrient deficiencies

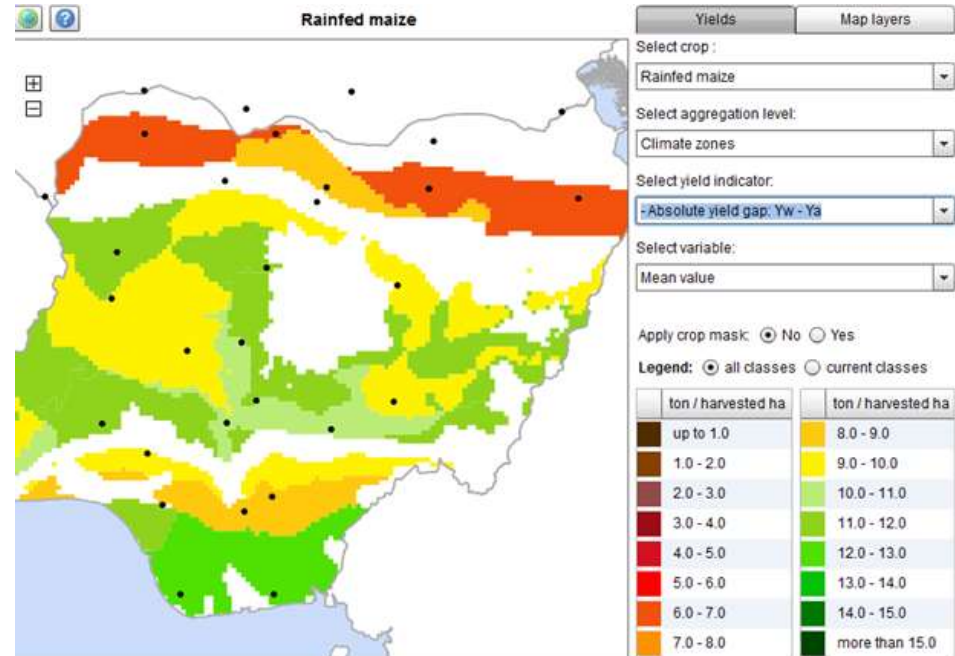
Rainfed rice

- Cultivated on flood plains and inland valley bottoms
- Cultivated area: 2.4 Mha
- Potential yield: 7.4 t/ha with CV of 10%
- Actual yield: 2.1 t/ha
- Yield gap: 5.3 t/ha
- Yield gap range: 2-7 t/ha
- Constraints same as irrigated rice plus erratic rainfall and seasonal submergence of seedlings



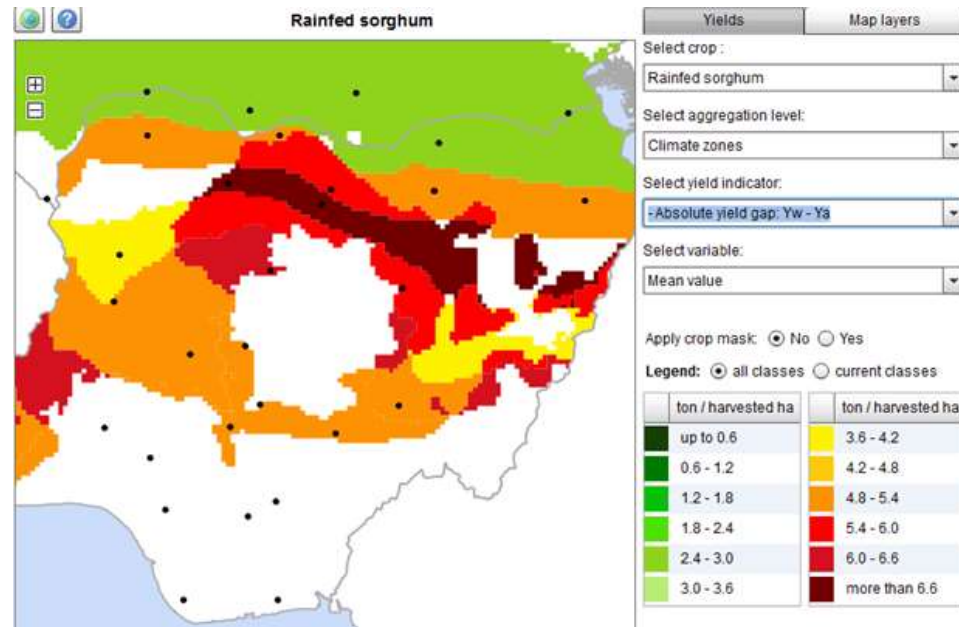
Rainfed Maize

- Cultivated country-wide
- Cultivated area: 4.1 Mha
- Potential yield: 12.3 t/ha with CV of 12.3%
- Actual yield: 1.7 t/ha
- Yield gap: 8.8 t/ha
- Yield gap range: 7-14 t/ha
- Constraints: Erratic rainfall, poor soil fertility and productivity, low input use and *Striga* infestation



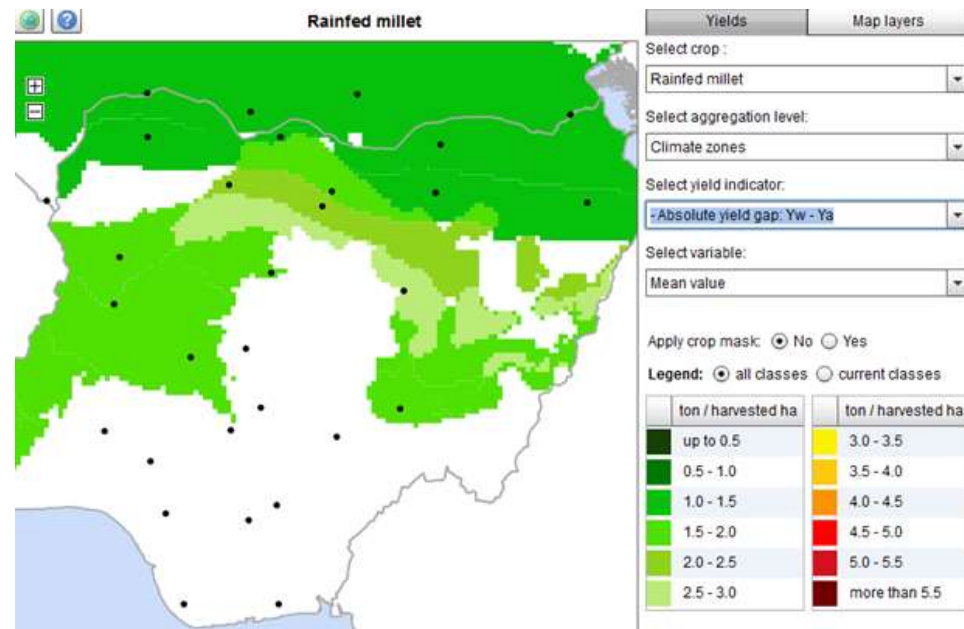
Rainfed Sorghum

- Cultivated in northern half of the country
- Cultivated area: 4.96 Mha
- Potential yield: 6.4 t/ha with CV of 12.6%
- Actual yield: 1.1 t/ha
- Yield gap: 5.3 t/ha
- Yield gap range: 1-7 t/ha
- Constraints: Erratic rainfall, poor soil fertility and productivity, low input use, low adoption of technology and *Striga* infestation



Rainfed Millet

- Cultivated in northern half of the country
- Cultivated area: 4.4 Mha
- Potential yield: 2.7 t/ha with CV of 9.6 %
- Actual yield: 1.0 t/ha
- Yield gap: 1.6 t/ha
- Yield gap range: 1-3 t/ha
- Constraints: Erratic rainfall, poor soil fertility and productivity, low input use, low adoption of technology and *Striga* infestation



General Constraints

- Inadequate and erratic rainfall
- Decline in soil fertility and productivity
- Inadequate access to credit
- Inadequate investment on agricultural inputs
- Low coverage by extension agencies
- Low rate of technology adoption in rural areas
- Low rate of utilization of cultivable land
- Aged farm labour force





Potential Applications

- Information could provide the basis for further studies on causes of yield gaps
- Investment by the private sector can be targeted to areas with low yield gap
- Prioritisation of Government support: Input supply, research and extension (high gap); infrastructure (low gap)
- Identified gaps in data but also helps to make redundant data useful



**Thanks for your kind
attention!**