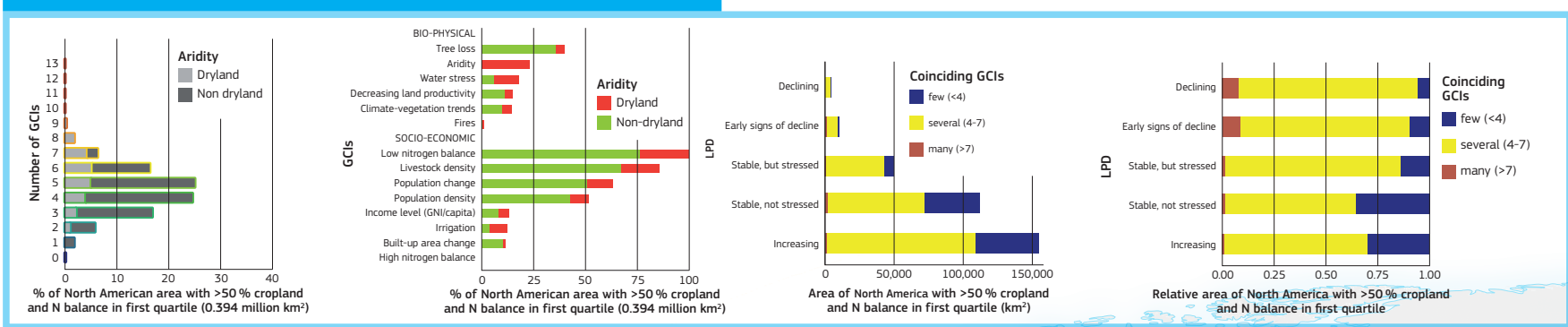


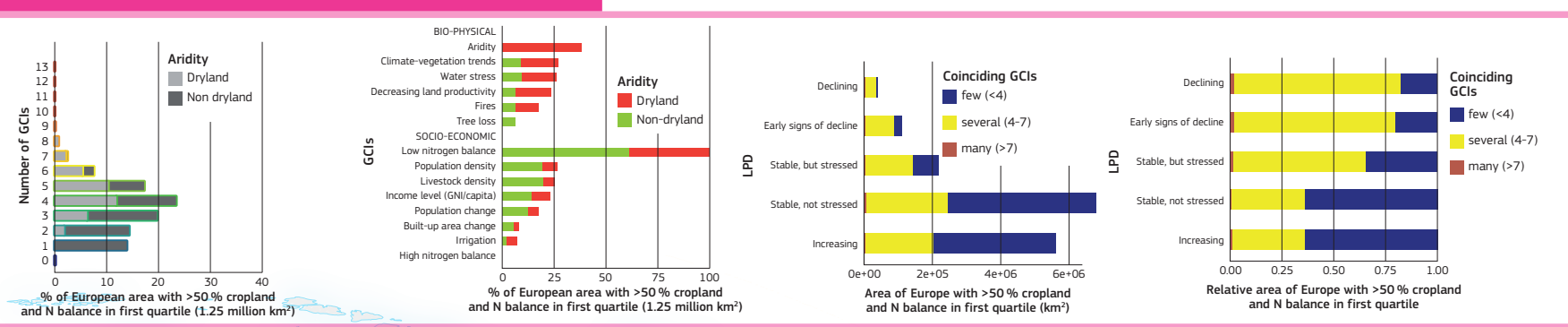
# Convergence of Evidence: High Density – Low Input cropland

High density – low input cropland are areas where >50% of each grid cell (1 km<sup>2</sup>) is under cultivation and where there is a low rate of nitrogen fertiliser application

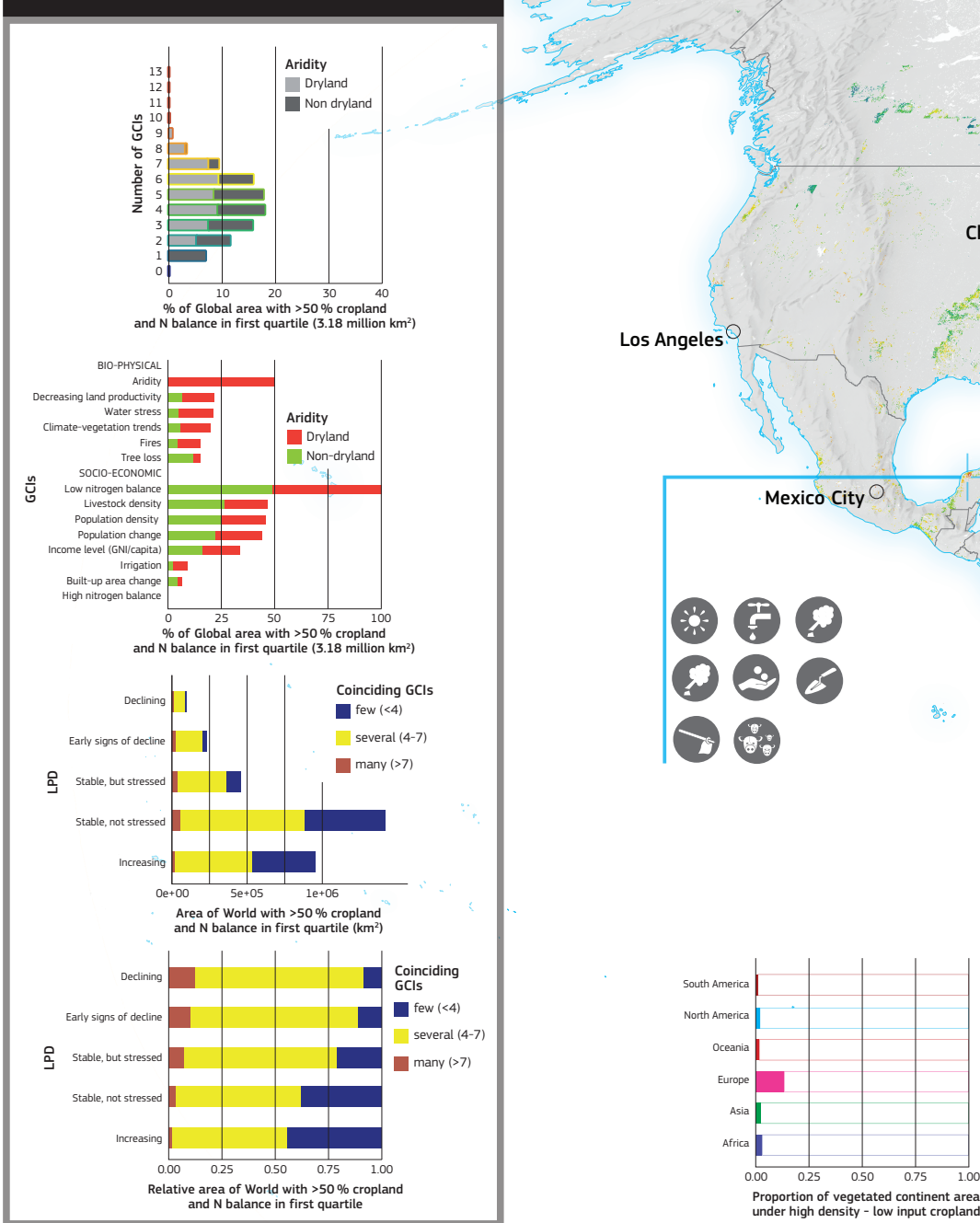
## Distributions of predominant issues in NORTH AMERICA



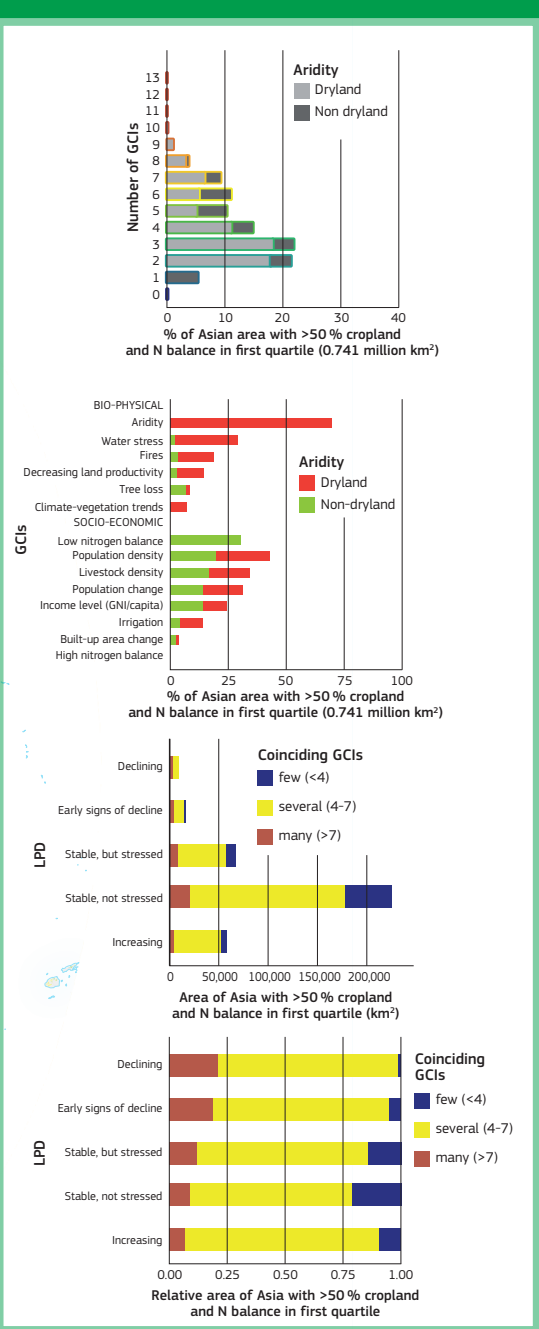
## Distributions of predominant issues in EUROPE



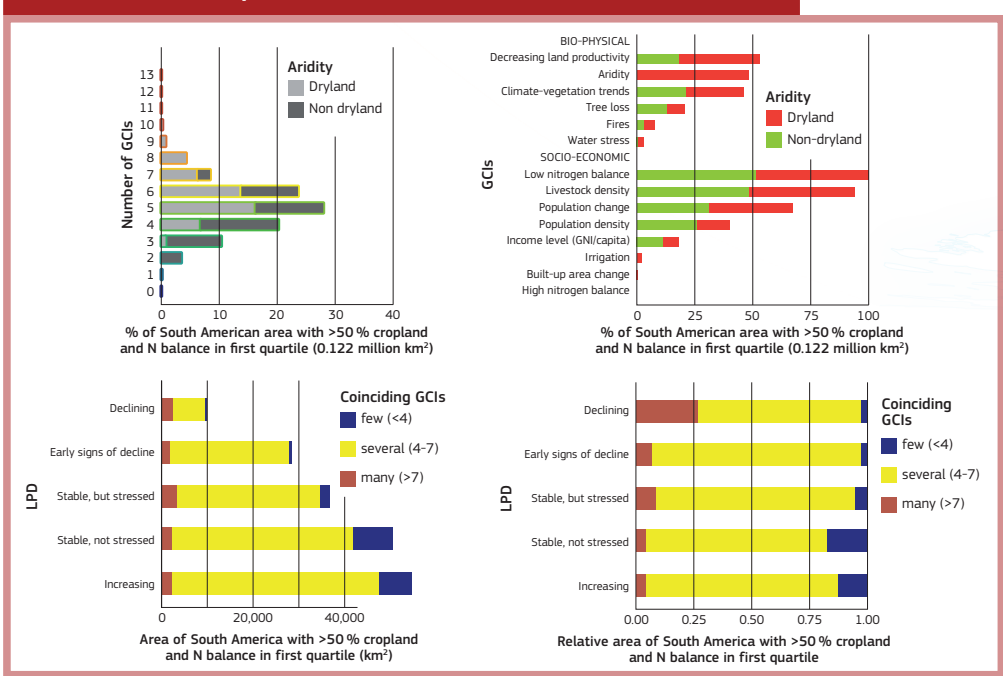
## Distributions of predominant issues in WORLD



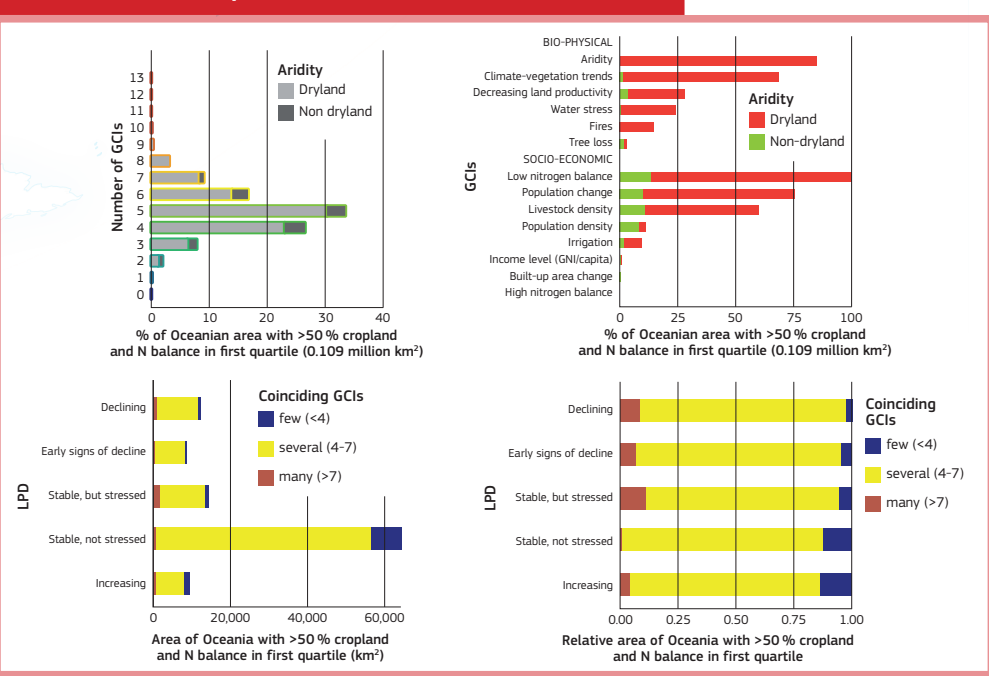
## Distributions of predominant issues in ASIA



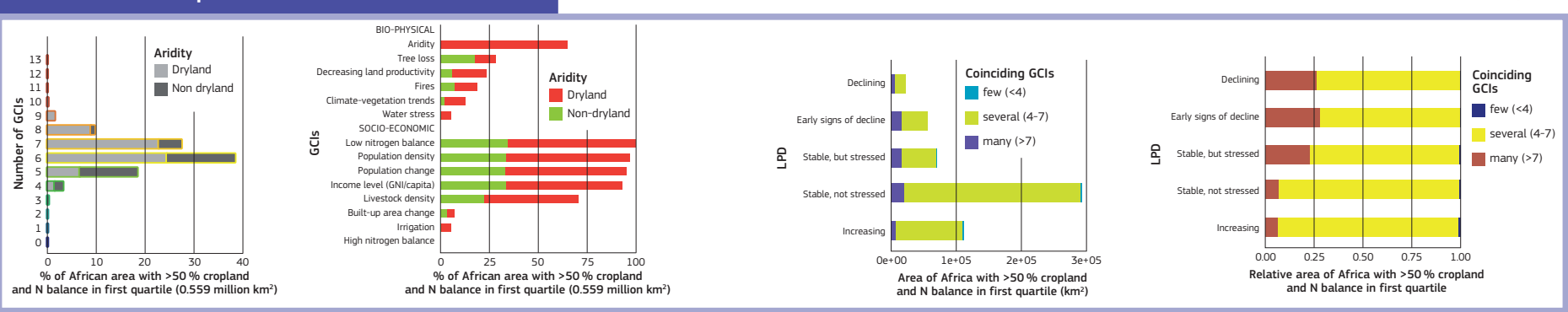
## Distributions of predominant issues in SOUTH AMERICA



## Distributions of predominant issues in OCEANIA



## Distributions of predominant issues in AFRICA



See previous page for explanatory text.

Number of coincident issues





# Convergence of Evidence: High Density – Low Input cropland

See next spread for data.

High density – low input cropland are rather limited globally. Input is considered low when the nitrogen balance remains in the first quartile, i.e. where a deficiency is reported (see table on page 145).

Examples of global regions where high density-low input cropland are affected by global change issues (GCI; see Table, page 145) include:

- Africa: Central and north-western Nigeria, east-central Sudan and some areas in Ethiopia, Uganda, Tanzania, Zimbabwe, and South Africa
- Myanmar: Part of the Irrawaddy River basin;
- South America: Soy-producing areas of Central Argentina, Bolivia;
- Eastern European, southern Russian and north-central Asia;
- North America: Northwest Yucatan in Mexico, and throughout the United States and Canada.
- Australia: Various locales in southeast Australia.

Global change issues (GCI) associated with transformations (including land degradation) in high density-low input cropland include livestock density, population and income level as the most important socio-economic GCI, while decreases in land productivity (in 22% of the area or about 700 000 km<sup>2</sup>), water stress, and drought conditions (i.e. climate-vegetation trends GCI, see table) are the most important biophysical GCI. The graph on area distribution of GCI illustrates that these cropping systems have fewer coincident GCI as compared to high density – high input cropping systems.

Analysis shows that in high density – low input cropland:

- About 4% (or 0.13 million km<sup>2</sup>) of the high density – high input cropland area experiences potential pressure from 8 to 13 GCI. Signs of land productivity decline are observed in 51% of this area (0.07 million km<sup>2</sup>).
- Approximately 60% (1.9 million km<sup>2</sup>) of the high density – high input cropland area experiences potential pressure from 4 to 7 GCI. Signs of land productivity decline are observed in 30% of this area (0.59 million km<sup>2</sup>).

- Approximately 35% (1.1 million km<sup>2</sup>) of the high density – high input cropland area experiences potential pressure from 1-3 GCI. Signs of land productivity decline are observed in 12% of this area (0.13 million km<sup>2</sup>).
- Less than 1% have no GCI.
- In the limited area where 7 or more GCI coincide, there is a higher proportion of declining land productivity

Low input cultivation coinciding with a persistent decline of land productivity dynamics raises concern for potential land degradation.

At a continental scale, some patterns with regard to high density – low input cropland and global change issues (GCI) emerge:

- **Africa.** There are more coincident GCI in Africa than anywhere else (more than 75% of the high density-low input cropland areas have >6 GCI). Tree loss, land productivity decline (in about 24% of the area), drought conditions, population issues, and low income tend to coincide.
- **Asia.** In Asia, 70% of this cropping system is found in drylands. The most important GCI are water stress, fire, and to a certain extent, land productivity decline.
- **South America.** The area of high density – low input cropland is limited, but more than 50% of it (about 60 000 km<sup>2</sup>) has declining land productivity, most of it in soybean producing areas where also drought conditions probably impacted on the land productivity dynamics.

- **Europe.** About 24% of the area (about 300 000 km<sup>2</sup>) exhibiting declines in land productivity is found in eastern Europe. Water stress and drought conditions are important GCI, especially in western Russia.
- **North America.** In about 38% of this area, tree loss is an issue. Other GCI of note are decreasing land productivity and livestock densities. A specific region of emerging concern is in the agriculture region of northwest Yucatan peninsula in Mexico.
- **Oceania.** Most high density – low input cropland in Oceania are found in drylands where drought conditions and land productivity decline are important GCI. Land productivity decline occurs in one third of the non-dryland high density-low input cropland area.

About 22% of global high density-low input cropland show a decline of land productivity over the last 15 years. This ranges from about 12% in North America and Asia, over 24% in Europe and 17% in Oceania to more than 50% of the high density-low input cropland in South America.

- Theme layer derived from: FAO GLC-SHARE v1.0<sup>39</sup>, 2014 and nitrogen balance on landscape: West P. 2014<sup>35</sup> (see page 54).
- This map has grid cells of 1 km<sup>2</sup>.
- Statistics – in total area (km<sup>2</sup>) or percentage of total area – are given for both global and/or continental scales.
- Refer to global change issues (GCI) in the table on page 145.
- Refer to 'how to read the maps' on page 146.

