Data from: Origins of food crops connect countries worldwide

## **Abstract**

Research into the origins of food plants has led to the recognition that specific geographical regions around the world have been of particular importance to the development of agricultural crops. Yet the relative contributions of these different regions in the context of current food systems have not been quantified. Here we determine the origins (‘primary regions of diversity’) of the crops comprising the food supplies and agricultural production of countries worldwide. We estimate the degree to which countries use crops from regions of diversity other than their own (‘foreign crops’), and quantify changes in this usage over the past 50 years. Countries are highly interconnected with regard to primary regions of diversity of the crops they cultivate and/or consume. Foreign crops are extensively used in food supplies (68.7% of national food supplies as a global mean are derived from foreign crops) and production systems (69.3% of crops grown are foreign). Foreign crop usage has increased significantly over the past 50 years, including in countries with high indigenous crop diversity. The results provide a novel perspective on the ongoing globalization of food systems worldwide, and bolster evidence for the importance of international collaboration on genetic resource conservation and exchange.

## **Usage notes**

#### **TableS1\_crops\_regions\_table**

Table S1. Crop commodities assessed in food supplies and agricultural production systems analyses and their primary regions of diversity. Taxonomy follows GRIN (2015) [25].

#### **TableS2\_countries\_regions\_table**

Table S2. Countries assessed in food supplies and agricultural production systems analyses and their associated regions.

#### **TableS3\_regionalcomposition\_tocountries**

Table S3. Importance of primary regions of diversity of agricultural crops in contribution to national food supplies [as measured in contribution of crops to calories (kcal/capita/day), protein (g/capita/day), fat (g/capita/day), and food weight (g/capita/day)] and national agricultural production [production quantity (tonnes), harvested area (ha), and production value (million US$)], averaged over years 2009-2011. Importance was estimated by grouping the contribution of consumed/produced crops by their primary regions of diversity. As some crops pertain to more than one primary region of diversity, total values across all primary regions per country is not equivalent to total per capita food supply/ total agricultural production values per country. Percentages provide a comparison of the relative importance of primary regions in contribution to the food supply/national production of each country.

#### **TableS4\_regionalcomposition\_toregions\_2009-2011**

Table S4. Importance of primary regions of diversity of agricultural crops in contribution to regional food supplies [as measured in contribution of crops to calories (kcal/capita/day), protein (g/capita/day), fat (g/capita/day), and food weight (g/capita/day),] and total regional agricultural production [production quantity (tonnes), harvested area (ha), and production value (million US$)], averaged over years 2009-2011. Regional food supplies values (kcal or g, /capita/day) were formed by deriving a population-weighted average of national food supplies values across countries comprising each region. Regional production values were formed by summing national production values across countries comprising each region. Importance was estimated by grouping the contribution of consumed/produced crops by their primary regions of diversity. As some crops pertain to more than one primary region of diversity, total values across all primary regions per consuming/producing region is not equivalent to total per capita food supply/ total agricultural production values per consuming/producing region. Percentages provide a comparison of the relative importance of primary regions in contribution to the food supply/total production of each region.

#### **TableS5\_cropcomposition\_ofregions**

Table S5. Crop commodity composition of regional food supplies [as measured in contribution of crops to calories (kcal/capita/day), protein (g/capita/day), fat (g/capita/day), and food weight (g/capita/day),] and total regional agricultural production [production quantity (tonnes), harvested area (ha), and production value (million US$)], averaged over years 2009-2011. Regional food supplies values (kcal or g, /capita/day) were formed by deriving a population-weighted average of national food supplies values across countries comprising each region. Regional production values were formed by summing national production values across countries comprising each region.

#### **TableS6\_util\_foreign\_2009-2011**

Table S6. Estimated percent use of foreign crops in current national food supplies and agricultural production systems. Data includes the raw mean minimum and maximum use values across years 2009-2011 per country, and the mean value between minimum and maximum per country across these years, as well as modeled mean values and variation metrics as estimated in a Bayesian framework using an interval-censored response variable bounded between minimum and maximum use estimates.

#### **TableS7\_util\_foreign\_overtime\_FS\_1961-2009**

Table S7. Change in use of foreign crops in national food supplies, from years 1961-2009. Data includes minimum and maximum use values for each variable for each country in each year, as well as slopes of change and variation metrics over the time period as estimated in a Bayesian framework using an interval-censored response variable bounded between minimum and maximum use estimates. Year was centered at 1985 for modeling purposes, thus model intercepts represent mean use in this year.

#### **TableS8\_util\_foreign\_overtime\_prod\_1961-2011**

Table S8. Change in use of foreign crops in national agricultural production systems, from years 1961-2011. Data includes minimum and maximum use values for each variable for each country in each year, as well as slopes of change and variation metrics over the time period as estimated in a Bayesian framework using an interval-censored response variable bounded between minimum and maximum use estimates. Year was centered at 1985 for modeling purposes, thus model intercepts represent mean use in this year.