



ALGERIA

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KEY INDICATORS, 2009–2012

| Total Public Agricultural Research Spending | 2009 | | 2012 |
|---|---------|---|---------|
| Algerian dinars (million constant 2005 prices) | 1,418.4 | | 1,689.4 |
| PPP dollars (million constant 2005 prices) | 68.6 |  | 81.7 |
| Overall Growth | | 19% | |
| Total Number of Public Agricultural Researchers | | | |
| Full-time equivalents (FTEs) | 510.3 |  | 593.4 |
| Overall Growth | | 16% | |
| Agricultural Research Intensity | | | |
| Spending as a share of agricultural GDP | 0.18% | | 0.21% |
| FTE researchers per 100,000 farmers | 15.53 | | 17.62 |

Note: Acronyms, definitions, and an overview of agricultural R&D agencies are available on page 4.

▶ Although Algeria's spending on agricultural R&D rose substantially between 2009 and 2012 (largely in response to retroactive salary increases), investment levels still fall short of international targets and are low relative to neighboring countries.

▶ The Algerian government is the principal source of funding of agricultural R&D. Only minimal additional resources are generated from donors and development bank loans or through the sale of goods and services.

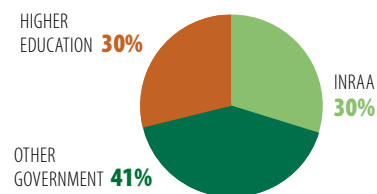
▶ The national number of agricultural researchers steadily increased during 2009–2012, as did their average qualification levels. In addition, more than half the researchers employed at INRAA, Algeria's principal agricultural R&D agency, are female.

FINANCIAL RESOURCES, 2012

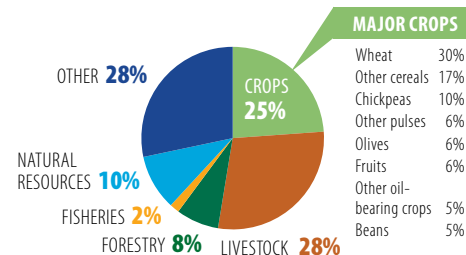
| Spending Allocation | |
|-----------------------------|------|
| Salaries | 80% |
| Operating and program costs | 20% |
| Capital investments | 0% |
| Funding Sources | |
| Government | 100% |

Note: Shares are based on data for INRAA only. Salaries only include those of permanent staff.

INSTITUTIONAL PROFILE, 2012



RESEARCH FOCUS, 2012



MAJOR CROPS

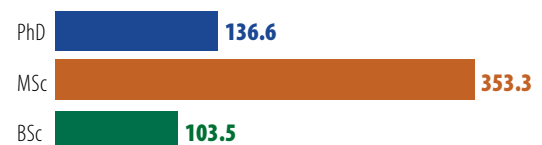
| | |
|-------------------------|-----|
| Wheat | 30% |
| Other cereals | 17% |
| Chickpeas | 10% |
| Other pulses | 6% |
| Olives | 6% |
| Fruits | 6% |
| Other oil-bearing crops | 5% |
| Beans | 5% |

Notes: Major crops include those that are the focus of at least 5 percent of all crop researchers; 15 percent of total crop researchers focused on a wide variety of other crops.

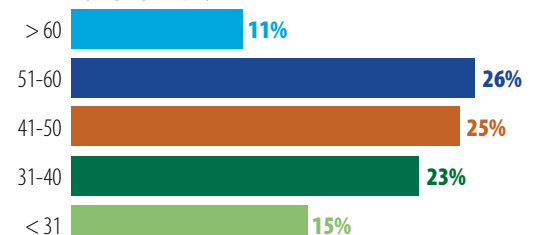
RESEARCHER PROFILE, 2012



Number by qualification (FTEs)



Share by age group (years)



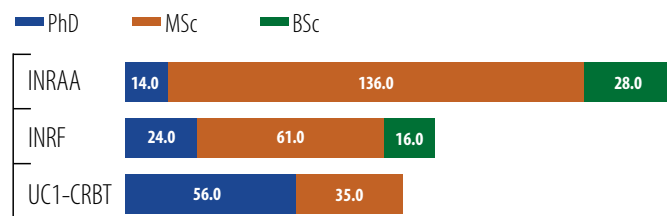
CHALLENGE

- ▶ The disparity in the official status of government-based scientists (as civil servants) and university scientists (as teachers/researchers) prevents INRAA, INRF, and other government agencies from offering the competitive salaries and benefits needed to attract, motivate, and retain staff. The departure of many well-qualified young researchers in favor of better conditions at universities have left INRAA with an aging pool of scientists, particularly among those qualified to the PhD-degree level.

POLICY OPTION

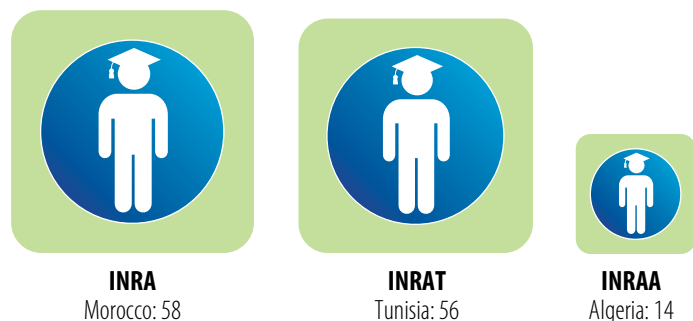
- ▶ The government needs to address discrepancies in the employment status of agricultural scientists to enable INRAA and INRF to successfully compete for well-qualified staff. If Algeria is to secure the necessary research capacity, the government needs to recruit young researchers without delay, and provide them with opportunities to pursue PhD training.

Distribution of agricultural researchers by degree, 2012 (FTEs)



INRF and UC1-CRBT employ much larger numbers of PhD-qualified scientists than INRAA. Only 14 of INRAA's 178 researchers hold PhD degrees. Of these, 3 are in their fifties, and 6 are in their sixties and are nearing retirement (the official retirement age is 60 years, but exceptions are sometimes made for senior researchers).

Number of PhD-qualified agricultural researchers, 2012 (FTEs)



In terms of the number of PhD-qualified researchers employed, INRAA's agricultural research capacity is dwarfed by capacity at the national agricultural research institutes in both Morocco and Tunisia. This is in spite of the fact that Algeria's economy and agricultural sector are larger than those of either Morocco or Tunisia.

▶ BUILDING HUMAN RESOURCE CAPACITY AT INRAA

A minimum number of PhD-qualified scientists is generally considered fundamental to the conception, execution, and management of high-quality research, and to effective communication with policymakers, donors, and other stakeholders, both locally and through regional and international forums. INRAA lacks a critical mass of PhD-qualified scientists, especially in the fields of biotechnology, genetics, and soil science.

Recognizing the critical nature of its impending capacity challenges, INRAA is in the process of developing an internal policy to provide young researchers with incentives to enroll in PhD programs both within and outside the country (depending on availability). INRAA's training service has a dedicated budget to support researchers in the pursuit of PhD degrees. In addition to internally funded training, some of INRAA's researchers have received grants from the International Center for Agricultural Research in the Dry Areas and the International Atomic Energy Agency to pursue PhD training abroad.

CROSS-COUNTRY COMPARISONS OF KEY INDICATORS

| | Total number of researchers, 2012 (FTEs) | Growth in number of researchers, 2009–2012 | Share of PhD researchers, 2012 (FTEs) |
|-------------------------|--|--|---------------------------------------|
| Algeria | 593.4 | 16% | 23% |
| Morocco | 556.3 | 7% | 40% |
| Tunisia | 541.6 | 26% | 62% |
| Mauritania ^a | 62.9 | 26% | 25% |

^a Mauritania data refer to 2011 or the 2009–2011 period.

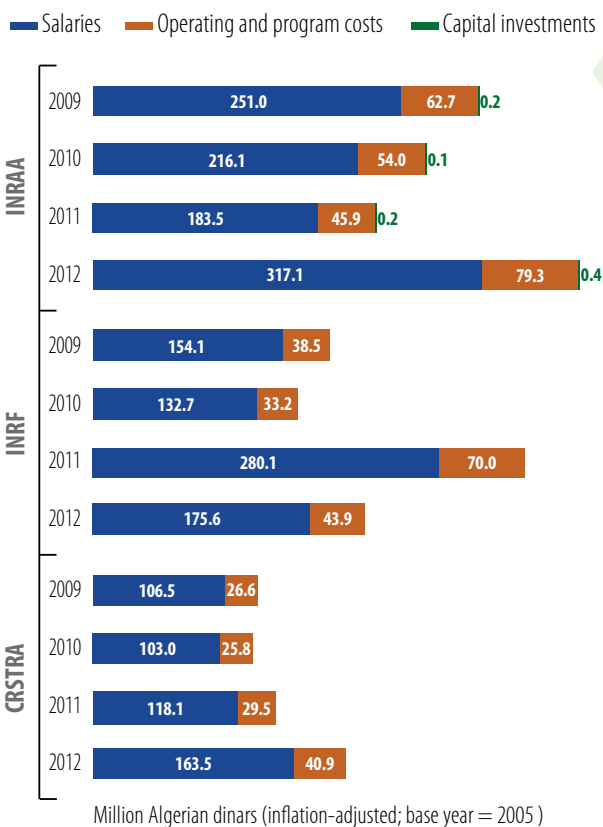
CHALLENGE

- ▶ Despite various policy reforms over the past decade, Algeria remains a food-importing nation vulnerable to food insecurity. Underinvestment in agricultural R&D is serious. In 2012, Algeria invested just 0.21 percent of its agricultural GDP in agricultural R&D, considerably less than its Maghreb neighbors or the internationally proclaimed target of at least 1 percent.

POLICY OPTIONS

- ▶ To generate high-quality, effective outputs, Algeria needs to increase its funding for agricultural R&D. The government needs to clearly define its long-term R&D priorities and secure sustained funding, not only in support of salary-related expenses, but also to cover the day-to-day costs of operating research programs. More creative mechanisms also need to be explored to stimulate private funding for agricultural R&D.

INRAA's, INRF's, and CRSTRA's spending by cost category, 2009–2012



On average, 80 percent of Algerian agricultural R&D agencies' total spending is allocated to salary-related expenses, leaving few resources to support the cost of running research programs. The 80:20 ratio of staff costs to operating costs is officially stipulated in the country's Finance Act. The 2011 reclassification of civil service employees prompted the disbursement of retroactive salary increases to researchers and technicians for the 2008–2011 period. The 2011/2012 timing of disbursements explains the significant increase in the salary bills of INRAA, INRF, and CRSTRA during those years. Capital investments during this timeframe have been negligible.

▶ RECENT POLICIES LIKELY TO ENHANCE FUTURE AGRICULTURAL R&D FUNDING

A number of important policy developments and changes to the institutional and legislative framework of scientific research in Algeria that have been put in place recently are expected to have a positive effect on future agricultural R&D funding levels. For example, Algeria's new scientific research and technological development law has recently been approved, and will become effective in 2015. Although this law targets the country's wider science and technology system, Algeria's agricultural research agencies are expected to draw large-scale benefits in terms of upgrades of their research facilities and equipment, enhanced financial autonomy, allocation of budgets to improve cooperation with the private sector, and a reevaluation of the official "researcher" status.

The 2012 ratification of the agreement between Algeria and the European Union on scientific and technological cooperation is also set to enhance agricultural R&D funding levels in the near future. Priority research themes under this agreement include food security, sustainable agriculture, climate change adaptation, and the efficient use of scarce natural resources. As of September 2014, INRAA had already obtained two European Union-funded projects and others were in the pipeline.

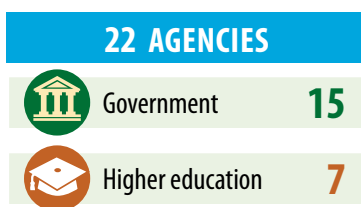
CROSS-COUNTRY COMPARISONS OF KEY INDICATORS *continued*

| | Total spending, 2012 (million 2005 PPP dollars) | Overall spending growth, 2009–2012 | Spending as a share of AgGDP, 2012 |
|-------------------------|--|---------------------------------------|---------------------------------------|
| Algeria | 81.7 | 19% | 0.21 |
| Morocco | 131.2 | 3% | 0.49 |
| Tunisia | 55.9 | 13% | 0.64 |
| Mauritania ^b | 8.9 | -21% | 0.80 |

^b Mauritania data refer to 2011 or the 2009–2011 period.

OVERVIEW OF ALGERIA'S AGRICULTURAL RESEARCH AGENCIES

A total of 22 agencies perform agricultural R&D in Algeria. INRAA (employing 178 FTE researchers in 2012) is Algeria's largest agricultural R&D agency, accounting for close to one-third of the country's agricultural researchers. Headquartered in Algiers, INRAA operates six research stations and nine research units scattered over Algeria's various agroecological zones. INRAA's scientists conduct research on a variety of commodities and themes, including crops (mostly wheat, barley, and chickpeas), pastures and forages, livestock, agricultural engineering, and socioeconomics. INRF (101 FTEs in 2012) is Algeria's principal institute for forestry research, but its scientists also conduct research on water and natural resources. INRF operates 18 research stations distributed across the country. Other important government R&D agencies include CRSTRA (48 FTEs), focusing on agriculture in dry regions; INPV (13 FTEs), which conducts plant protection research; and ITAFV (11 FTEs), which carries out fruit tree research. The two largest higher education agencies in terms of FTE agricultural researchers are UC1-CRBT (91 FTEs) and the Laboratory for Dry Area Research under USTHB (33 FTEs). Both have a broad research focus that includes crops, livestock, natural resources, and agricultural engineering. Agricultural R&D conducted by the private for-profit sector in Algeria is negligible.



 For a complete list of the agencies included in ASTI's dataset for Algeria, visit www.asti.cgiar.org/algeria.

ASTI DATA PROCEDURES AND METHODOLOGIES

- ▶ The **data underlying this factsheet** were predominantly derived through primary surveys, although some data were drawn from secondary sources or were estimated.
- ▶ **Public agricultural research** includes research conducted by government agencies, higher education agencies, and nonprofit institutions.
- ▶ ASTI bases its calculations of human resource and financial data on **full-time equivalent (FTE) researchers**, which take into account the proportion of time staff actually spend on research compared with other activities.
- ▶ ASTI presents its financial data in 2005 local currencies and **2005 purchasing power parity (PPP) dollars**. PPPs reflect the relative purchasing power of currencies more effectively than do standard exchange rates because they compare prices of a broader range of local—as opposed to internationally traded—goods and services.
- ▶ ASTI estimates the **higher education sector's research expenditures** because it is not possible to isolate them from the sector's other expenditures.
- ▶ Note that, due to **decimal rounding**, the percentages presented can sum to more than 100.

 For more information on ASTI's data procedures and methodology, visit www.asti.cgiar.org/methodology; for more information on agricultural R&D in Algeria, visit www.asti.cgiar.org/algeria.

ACRONYMS USED IN THIS FACTSHEET

| | |
|-----------------|---|
| CRSTRA | Scientific and Technical Research Center for Dry Regions |
| FTE(s) | Full-time equivalent (researchers) |
| GDP | Gross domestic product |
| INRA | National Agricultural Research Institute (Morocco) |
| INRAA | National Agricultural Research Institute of Algeria |
| INRAT | National Agricultural Research Institute of Tunisia |
| INPV | National Plant Protection Institute |
| INRF | National Forestry Research Institute |
| ITAFV | Technical Fruit Tree and Viticulture Institute |
| PPP(s) | Purchasing power parity (exchange rates) |
| R&D | Research and development |
| UC1-CRBT | University of Constantine 1—Biotechnology Research Center |
| USTHB | University of Science and Technology Houari Boumediene |

ABOUT ASTI, IFPRI, AND INRAA

Working through collaborative alliances with numerous national and regional R&D agencies and international institutions, **Agricultural Science and Technology Indicators (ASTI)** is a comprehensive and trusted source of information on agricultural R&D systems across the developing world. ASTI is led by the **International Food Policy Research Institute (IFPRI)**, which—as a CGIAR member—provides evidence-based policy solutions to sustainably end hunger and malnutrition and reduce poverty. The **National Agricultural Research Institute of Algeria (INRAA)** is Algeria's principal agricultural R&D agency. It falls under the Ministry of Agriculture and Rural Development and carries out research on crops, livestock, pastures and forages, natural resources, and socioeconomics.

ASTI/IFPRI and INRAA gratefully acknowledge participating agricultural R&D agencies for their contributions to the data collection and preparation of this country factsheet. ASTI also thanks the Economic Research Service of the United States Department of Agriculture for its generous support of ASTI's work in West Asia and North Africa and the Association of Agricultural Research Institutions in the Near East and North Africa for facilitating the survey implementation. This factsheet has been prepared as an ASTI output and has not been peer reviewed; any opinions are those of the authors and do not necessarily reflect the policies or opinions of IFPRI or INRAA.