

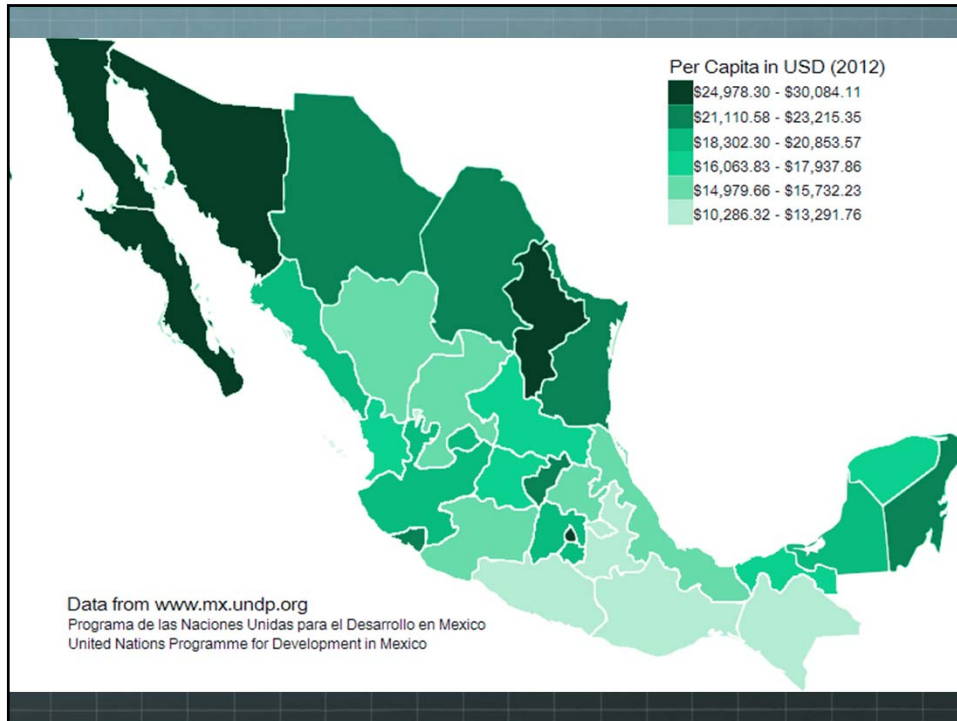
# UPOV's Train the Trainer Program Case study of public research center

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## Mexico



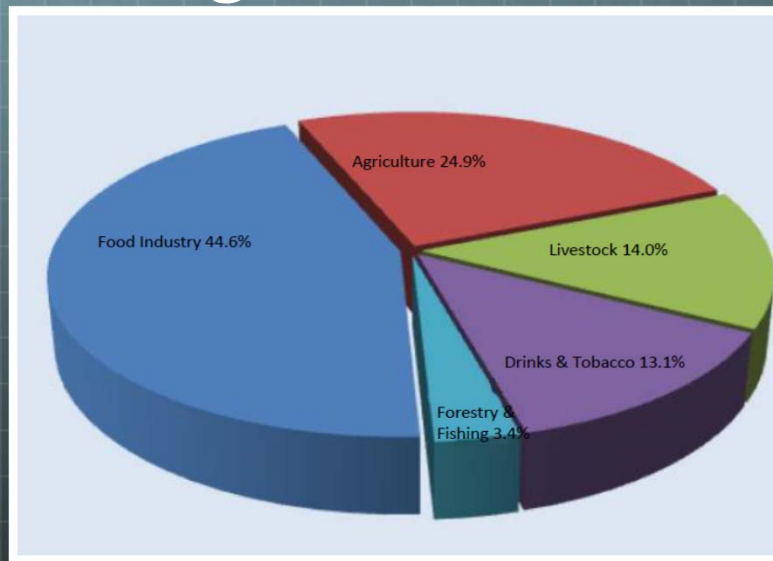
1.96 million Km<sup>2</sup>  
GDP : 1.28 trillion (2014)  
Agriculture 3.6%  
Industry: 36.6%  
Services 59.8%  
Population: 115 million



## Importance of primary sector

- 🌐 Practically all food production
- 🌐 Agricultural and livestock products form the basis of a large number of commercial and industrial activities (the contribution of this sector to Mexican GDP rises to over 9%)
- 🌐 Employment to around 13 percent of the workforce (3.3 million producers and 4.6 million salaried workers and non-paid family members). 24 per cent of the total population lives in rural areas
- 🌐 Agriculture has important backward and forward linkages with other sectors
- 🌐 1993-2010, the average annual growth rate of Primary GDP was 2.1%

# Agri-food GDP



# Research: research staff

SNI MEMBERS BY SCIENCE AREA 2000-2010  
Number






Year	Physical-Mathematical & Earth Sciences	Biology & Chemistry	Medicine & Health Sciences	Humanities & Behavioral Sciences	Social Sciences	Biotechnology & Agricultural & Livestock Sciences	Engineering	Total
2000	1,569	1,435	765	1,269	810	700	918	7,466
2001	1,612	1,436	846	1,362	920	856	986	8,018
2002	1,770	1,661	926	1,552	1,097	1,011	1,182	9,199
2003	1,770	1,661	926	1,552	1,097	1,011	1,182	9,199
2004	1,878	1,767	1,043	1,700	1,233	1,131	1,437	10,189
2005	1,968	1,776	1,168	1,798	1,369	1,257	1,568	10,904
2006	2,074	1,891	1,343	1,964	1,608	1,441	1,775	12,096
2007	2,277	2,179	1,429	2,169	1,854	1,586	1,991	13,485
2008	2,478	2,443	1,445	2,326	2,187	1,711	2,091	14,681
2009	2,600	2,704	1,440	2,394	2,469	1,720	2,238	15,565
2010 <sup>p/</sup>	2,708	2,905	1,592	2,465	2,616	1,866	2,448	16,600

p/ Preliminary figures

# SNI by institution

Institution	Candidates	National Researcher			Total	%
		Level I	Level II	Level III		
National Autonomous University of Mexico	253	1,452	961	586	3,252	19.6
Public State Universities	1248	3,028	580	114	4,970	29.9
Research Centers – CONACYT	219	774	416	198	1,607	9.7
Center for Advanced Research and Studies	48	205	176	97	526	3.2
Metropolitan Autonomous University	68	428	198	69	763	4.6
National Health Institutes	88	362	75	49	574	3.5
National Polytechnic Institute	167	442	123	25	757	4.6
Private Universities	109	263	64	12	448	2.7
Mexican Social Security Institute	30	178	28	18	254	1.5
College of Postgraduates in Agricultural Sciences	31	114	58	19	222	1.3
National Institute of Forestry, Agricultural and Livestock Research	18	120	26	5	169	1.0
National Institute of Anthropology and History	5	57	43	10	115	0.7
Technological Institutes	113	210	47	15	385	2.3
National Institute of Nuclear Research	9	54	15	0	78	0.5
Electric Power Research Institute	7	32	5	1	45	0.3
Mexican Petroleum Institute	18	109	22	5	154	0.9
Private Companies	21	25	1	1	48	0.3
Foreign Institutions	57	50	1	0	108	0.7
Not specified	422	861	344	181	1,808	10.9
Others	107	180	27	3	317	1.9
<b>Total</b>	<b>3,038</b>	<b>8,944</b>	<b>3,210</b>	<b>1,408</b>	<b>16,600</b>	<b>100.0</b>

# Agricultural research

-  In the last decade Mexican scientific production in regard to the publication of articles in indexed journals has enjoyed sustained growth. In the case of agricultural research, this same trend is evidenced by the increase from 180 published articles in 2002 to 385 in 2009. Publications related to “plants and animals” rose from 662 in 2002 to 1,470 in 2009.
-  Scientific performance in the area of agriculture has improved
-  With regard to agri-food sector related inventions, in the patent search we carried out by covering the classes most related to agricultural research results, barely 34 applications from Mexican inventors were identified in the period 2002-2011
-  In the case of the protection application for new plant breeders’ rights, the figures for Mexican breeders are better since in the same period (2002-2011) a total of 273 applications were submitted.
-  This is a demonstration of a generalized characteristic of Mexican research: being excessively oriented towards the generation of traditional scientific results as opposed to tangible impacts on industry.

# INIFAP

- To generate knowledge and technological innovations that contribute to the sustainable development of Mexico's forestry, agriculture and livestock industry chains.
- To develop and promote strategic and frontier research to contribute in a timely manner to the solution of the big problems of productivity, competitiveness, sustainability and equity of Mexico's forestry, agriculture and livestock sectors.
- To promote and support forestry, agriculture and livestock knowledge and technology transfer, in accordance with the priority needs and demands of producers and society; and to contribute to the formation of human resources.
- To strengthen institutional capacity through training, renewal and motivation of its staff, as well as the modernization of infrastructure, procedures and management to meet the demands of society.

# Staff

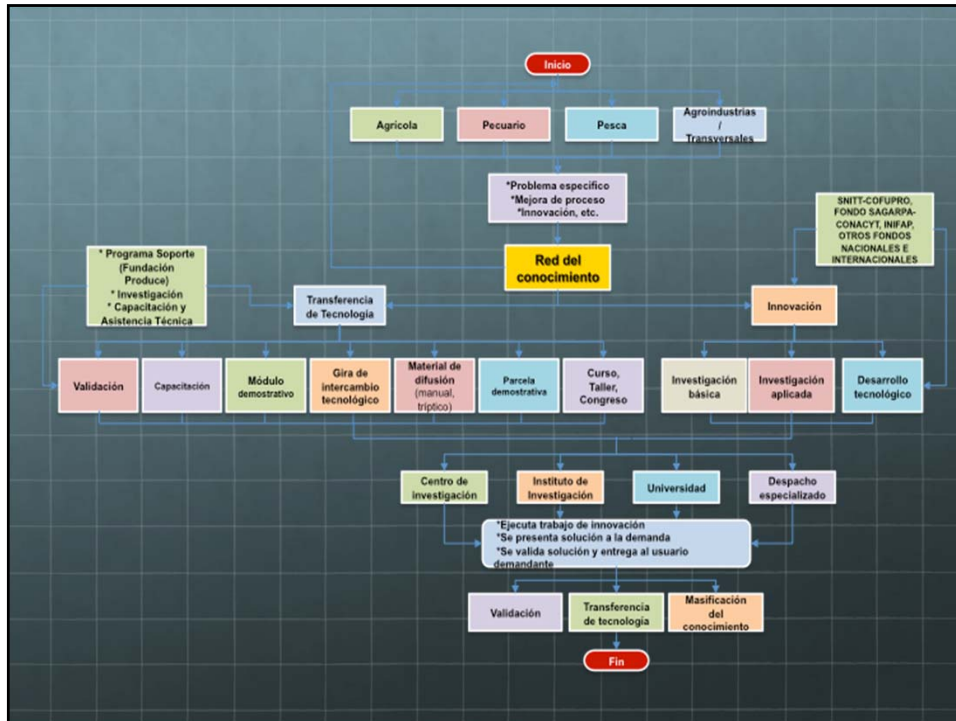
Type of staff	Number	%
Scientific	884	46
Staff in positions of trust	128	8
Permanent staff	725	37
Middle and senior managers	164	9
<b>Total</b>	<b>1901</b>	<b>100</b>



*INIFAP* is nationwide in Mexico, with research facilities and experimental fields around the country, and manages research and innovation networks in the following areas: sustainable forest management, environmental services, annual oilseed harvests, perennial industrial crops, water and soils, vegetables, pastures and forage resources, deciduous and tropical fruit trees, maize, plant health, beans and other leguminous plants, wheat and other small grains, bioenergy, agroforestry plantations and systems, beef, biotechnology, mechanization and instrumentation, pigs, bovine milk, modeling, honey bees, and animal health.

## Technology transfer

- 🌐 **INIFAP is one of the main breeders**
  - 🌐 **No clear policy for licensing**
  - 🌐 **Little experience in negotiation with private firms**
  - 🌐 **Very conservative approach to technology management**
  - 🌐 **No initiative to promote start-ups and spin offs**
- 🌐 *INIFAP* has clear strengths in research, but while it has experience in collaborating with companies and producers, its approach to technology transfer is somewhat passive: this is evident in its annual reports where, when referring to transfer, it mentions that its technologies are available in different fields (in the hope that there will be interest).
- 🌐 Specialists we interviewed agree that it is very difficult to establish collaboration, so *INIFAP* fails to exploit the potential of inter-institutional collaboration.



## INIFAP in this linear model

- 🌐 Sells services
- 🌐 Focuses on research, with little attention to innovation.
- 🌐 Technology transfer schemes oriented to helping farmers but its incentives for scientific staff do not reward solutions to farmers' problems
- 🌐 Lack of collaboration with seed companies

# Recommendations

- The SNIA must have more resources, which are a prerequisite for designing and implementing programs with diversified objectives to promote innovation among different strata of producers, in order to reduce current differentials in productivity and competitiveness.
- A regional perspective should be introduced to strengthen the capacities for innovation in areas that remain marginalized.
- A new system of incentives is necessary to encourage knowledge generators to respond to demands and propose effective solutions
- Innovation policy requires that shared socioeconomic objectives provide the motivation for better articulation of the SNIA and the space for designing more effective policy instruments than what now exists.

## Thank you

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