

# 12<sup>th</sup> World Spice Congress

## Session II: Engaging Research to meet industry challenges

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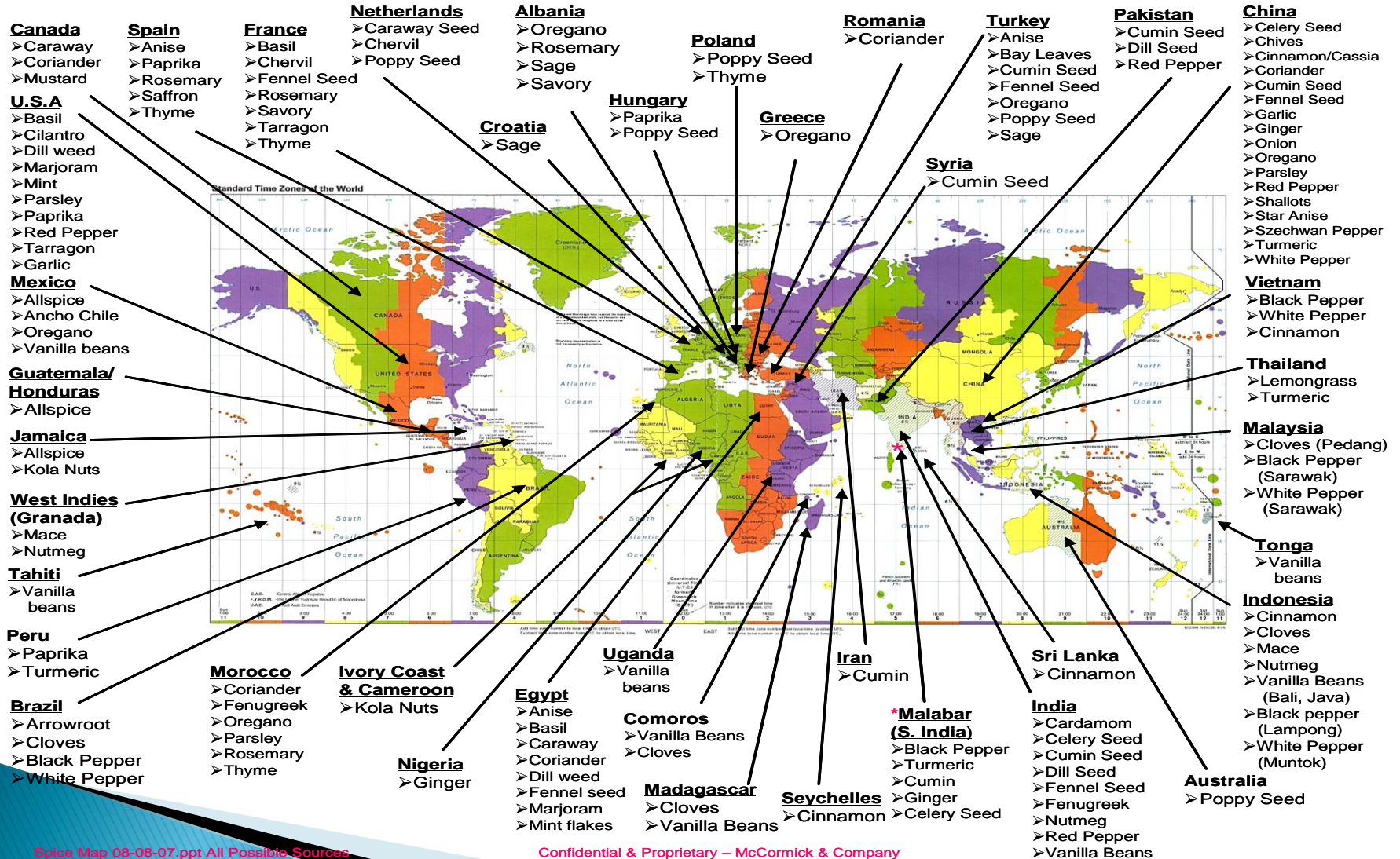
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# Spice Business: An overview

- ▶ About 9500 species of medicinal and aromatic plants are classified and documented till date
- ▶ About 107 spices and 20 countries involved in the production and export of spices
- ▶ A look at India :
  - Excavations in the Indus valley revealed that spices and herbs have been in use even before 1000 BC
  - Grows 50 spices
  - Annual production: +3 million MT (30% of world production)
  - Largest producer, consumer and exporter of spices in the world
  - Indian export accounts for 30-40% world spice trade
  - Major spices produced are black pepper, cardamom, ginger, garlic, turmeric, chilly
  - 90% domestic, 10% export of total spice production

# Spices: Global Supply complexity



# India suffers from very low farm productivity – few examples

- ▶ Black Pepper - 260 kg/ha Vs Malaysia - 2925 kg/ha
- ▶ Cardamom - 174 kg/ha Vs Guatemala - 250 kg/ha
- ▶ Ginger - 3583 kg/ha
- ▶ Turmeric - 4382 kg ha

# Spices: Research areas to improve agricultural productivity and quality

- ▶ Genetic enhancement and Biotechnology
  - ▶ Geo-agricultural and Nano technologies
  - ▶ Managing natural resources
  - ▶ Management of inputs and energy
  - ▶ Bio-risk management
  - ▶ Policies
  - ▶ Transfer of Technology
- 

# Spices: Value addition

- **Definition: Maximum realization of the price of the product through processing, packaging and marketing.**
- **Benefits of value added products over raw spices**
  - Easy to carry
  - Long lasting flavors
  - More volume can be handled / per unit area
  - Easy to store , free from bacterial contamination.
  - Used in food industry, preservatives and pharmaceutical industry
  - Cost leveraging

# Processing For Value addition

*Converts perishable raw materials into stable products with longer life.*

*Increase taste and nutrition.*

*Change form, color, nutritional value*

*Minimize qualitative and quantitative deterioration of the produce after harvest.*

**Need to increase level of value addition and improve quality of products for domestic and export market.**



# Spice Business: Indian Scenario

- **India's advantages over other spice producing countries**
  - Large genetic base
  - Varied soil and climatic conditions
  - Skilled man power with traditional agricultural knowledge
- **Areas for research and improvement to be competitive in spice trade 2020**
  - Low Productivity and yield.
  - Poor soil fertility, use of low grade agricultural inputs
  - Lack of modern agricultural, post harvest management, processing systems
  - High labor cost and crop loss due to diseases
  - Lack of resistant varieties and post harvest losses
  - High cost of the production
  - High level of microbial and chemical contamination (mycotoxins, pesticides, heavy metals).



# Indian Spice Business: Focus areas for research

## ▶ Need to make efforts to produce safe, clean spices at competitive prices

- By increasing productivity and reducing cost of cultivation
- By improving post harvest processing and storage systems
- Food safety, Food security, traceability a MUST
- Educating farmers and traders in handling/processing the produce hygienically
- The future trading is going to be tough in view of stringent food regulations

## ▶ Focus areas for success by 2020

### • Higher productivity by improved agriculture

- **Genetic improvements:** high yielding and disease resistant varieties, multi location testing of varieties for adaptation and quality, varieties suited to organic production, production of nucleus planting material of elite lines, identification of varieties adaptable to climate change
- **Geo-agricultural improvements:** strategies to mitigate ill effects of climate change, Satellite imagery, Use of GPS and mapping techniques using GIS
- **New cropping techniques:** intensive agriculture under mixed farming systems along with other horticultural crops.
- Food safe and clean products through improved post harvest techniques
- Threshold price affordable to food industry
- Innovative products and packaging

# Vision 2020 for Indian Spices Business

- ▶ **Supply of spices and spice products that are:**
  - Farm to fork traceable
  - Ethnic, flavour protected and flavour enhanced by genetic improvement/biotechnology
  - Improved for productivity and aroma characteristics through modern agricultural systems
  - Food safe and food secure
  - Improved through better post harvest supply chain
  - Value added using latest processing techniques to preserve flavour
  - Evolved through innovative R&D in terms of applicability, delivery of taste and convenience
  - Packed for customised use based applicable to modern life style

# Acknowledgement

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- [www.fsqs.in](http://www.fsqs.in)

- [www.foodsafe.in](http://www.foodsafe.in)