The Arab-GAP : scope and framework

Expert Group Meeting on the Scope and Setting up of an Arab – Good Agricultural Practices (Arab – GAP) Framework

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WHY Fresh Produce?

GLOBAL HEALTH CONCERNS

Fresh produce is responsible for half of the foodborne illnesses in the USA (CSPI, 2015)

The Telegraph

"It is generally safer to eat a burger than the salad that goes with it"
(Telegraph, 22/03/2013)

Fresh Produce : Potentially hazardous food

- Populations are being encouraged to consume more fresh vegetables and fruits
- Increasing production of ready to eat produce
- Complete elimination of organisms is not possibly achieved by conventional methods

Fresh Produce : Potentially hazardous food

- Short-life and perishability
- Limited information
- Critical shortfalls at harvest and post-harvest stages along the food chain pose great health risks (AFED, 2014; Faour-Klingbeil et al., 2016).

Fresh Produce : Potentially hazardous food

2004-2012:

197 outbreaks in EU and 377 in the USA

Table 1
Outbreaks linked to fresh produce from 2005 to 2011.

Location	Year	Pathogen	Produce	Cases (deaths)	References
Canada	2005	*Salmonella*	Mung bean sprouts	592	Rohekar et al., 2008
USA	2005	*Salmonella*	Tomatoes	459	CDC, 2007
USA	2006	*E. coli* O157:H7	Spinach	199 (3)	CDC, 2006b
Australia	2006	*Salmonella*	Alfalfa sprouts	125	Compton et al., 2008
USA, Canada	2006	*Salmonella*	Fruit salad	41	Landry et al., 2007
USA	2006	*Salmonella*	Tomatoes	183	CDC, 2006a
USA	2006	*E. coli* O157:H7	Lettuce	81	FDA, 2007
Australia	2006	*Salmonella*	Cantaloupe	115	Munnoch et al., 2008
USA	2006	*E. coli* O157:H7	Spinach	22	Grant et al., 2006
Europe	2007	*Salmonella*	Baby spinach	354	Denny et al., 2007
North America, Europe	2007	*Salmonella*	Basil	51	Pezzoli et al., 2007
Australia, Europe	2007	*Shigella sonnei*	Baby carrots	230	Lewis et al., 2007
Europe	2007	*Salmonella*	Alfalfa sprouts	45	Emberland et al., 2007
USA, Canada	2008	*Salmonella*	Peppers	1442 (2)	CDC, 2008b; Mody et al., 2011
USA, Canada	2008	*E. coli* O157:H7	Lettuce	134	Warriner and Namvar, 2010
UK	2008	*Salmonella*	Basil	32	Elviss et al., 2009
USA	2008	*Salmonella*	Cantaloupe	51	CDC, 2008a
USA, Canada	2008	*Salmonella*	Peanut butter	714 (9)	CDC, 2009b
USA	2009	*Salmonella*	Alfalfa sprouts	235	CDC, 2009a
USA	2010	*E. coli* O145	Lettuce	26	CDC, 2010a
USA	2010	*Salmonella*	Alfalfa sprouts	44	CDC, 2010b
USA	2010	*L. monocytogenes*	Fresh cut produce (celery)	10 (5)	FDA, 2010
USA	2011	*Salmonella*	Alfalfa and mixed sprouts	140	CDC, 2011b
USA	2011	*Salmonella*	Cantaloupe	20	CDC, 2011c
USA	2011	*Salmonella*	Papaya	106	CDC, 2011d
Europe	2011	*E. coli* O104:H4	Vegetable sprouts	3911 (47)	ECDC, 2011; EFSA, 2011
USA	2011	*L. monocytogenes*	Cantaloupe	146 (31)	CDC, 2011e
USA	2011	*E. coli* O157:H7	Strawberries	15 (1)	FDA, 2011
USA	2011	*E. coli* O157:H7	Lettuce	60	CDC, 2011a

Panic in Germany

- Largest HUS/EHEC outbreak in history
- Mainly young adults, female > male
- Death count raises daily
- Source still unknown
- Sales for salads and vegetables plummeting

HUS Incidence
(cases per 100,000 persons)

Source: Robert Koch Institute

Food-borne Epidemic in the EU:
Desperately Seeking the Source

- Unconnected cluster in Bordeaux
- EFSA, July 5: It's Fenugreek seeds from Egypt!
- But the bug was never detected in seeds or sprouts

⇨ It can happen again, any time

Cases (deaths) May 1 – July 4

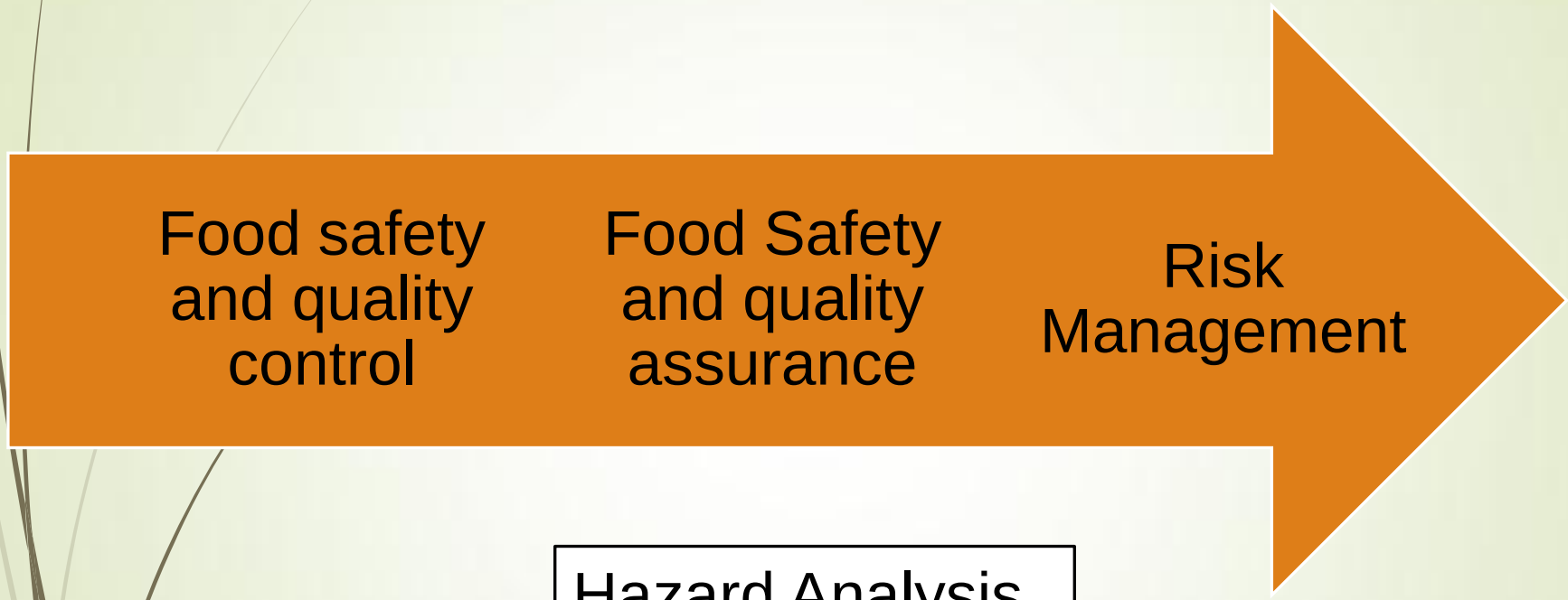
Data from ECDC, 2011

IBS

Prof. Alexander Kekulé - Director - Institute for Biosecurity Research, Germany

Recent fresh produce-related outbreaks	Type of produce/Origin	Note
2015: Salmonella Poona outbreak ,767 people infected from 36 states	Cucmbers from Mexico	Unknown
2014: Salmonella Newport outbreak sickened 257 patients in 29 states and the District of Columbia. Source. CSPI ,2015	Cucumbers / unidentified source	The bacteria was assumed to be linked to the application of manure.
2012: Salmonella Typhimurium and Salmonella Newport in 2012, sickened 261 people in 24 states, 3 deaths and 94 hospitalizations. Source. CSPI 2015	Cantaloupes	An inspection found unsanitary conditions in the farm's processing shed.
2008: Salmonella Saintpaul sickened 1,442 people in 43 states. Source. CSPI 2015	Jalapeño and serrano peppers and pepper products (e.g., salsa)/ Mexico	Suspected caused contaminated irrigation water

THE SHIFT IN FOOD SAFETY

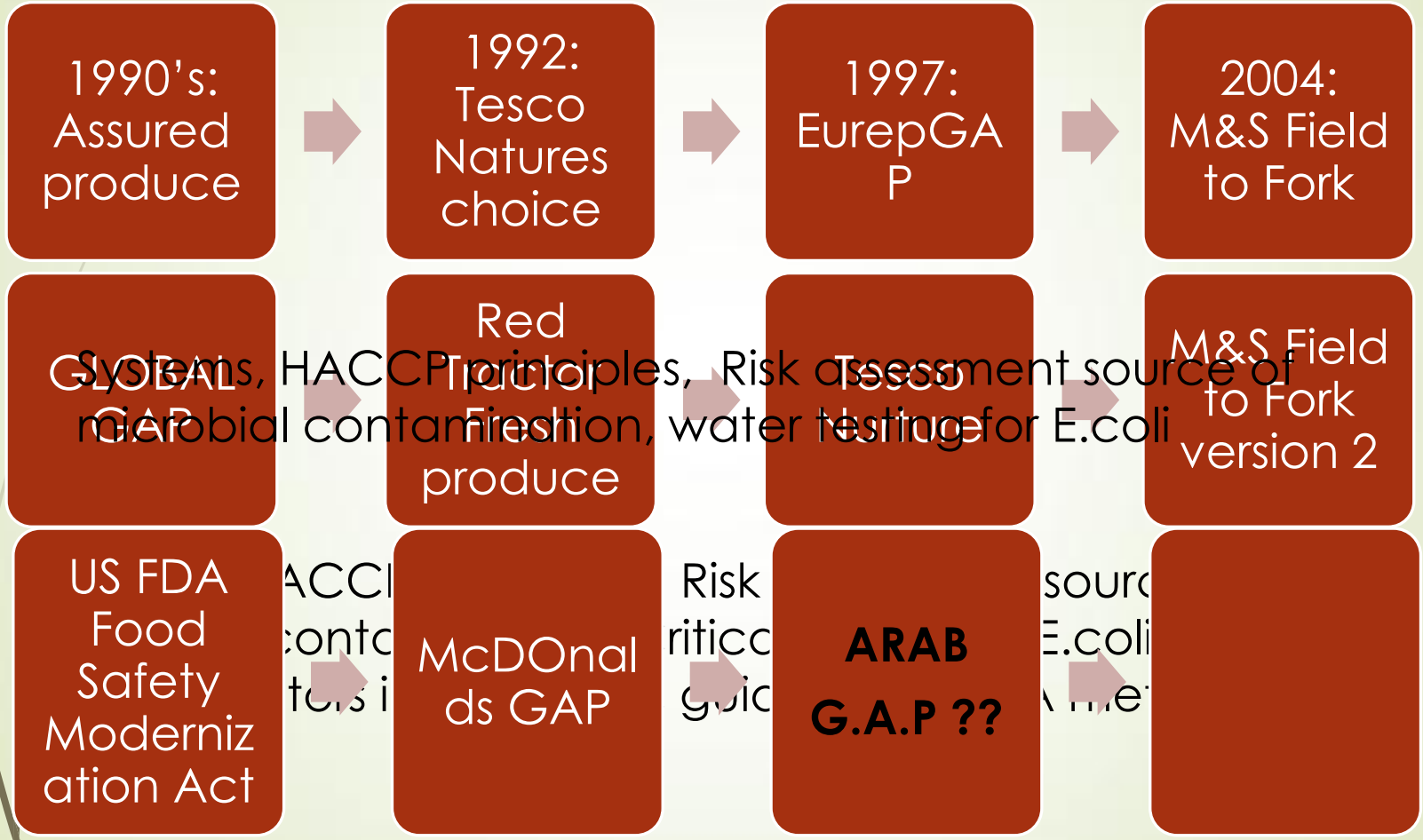


Hazard Analysis

Risk Assessment

Hazard: a threat that causes harm
Risk: likelihood a person is harmed by the hazard

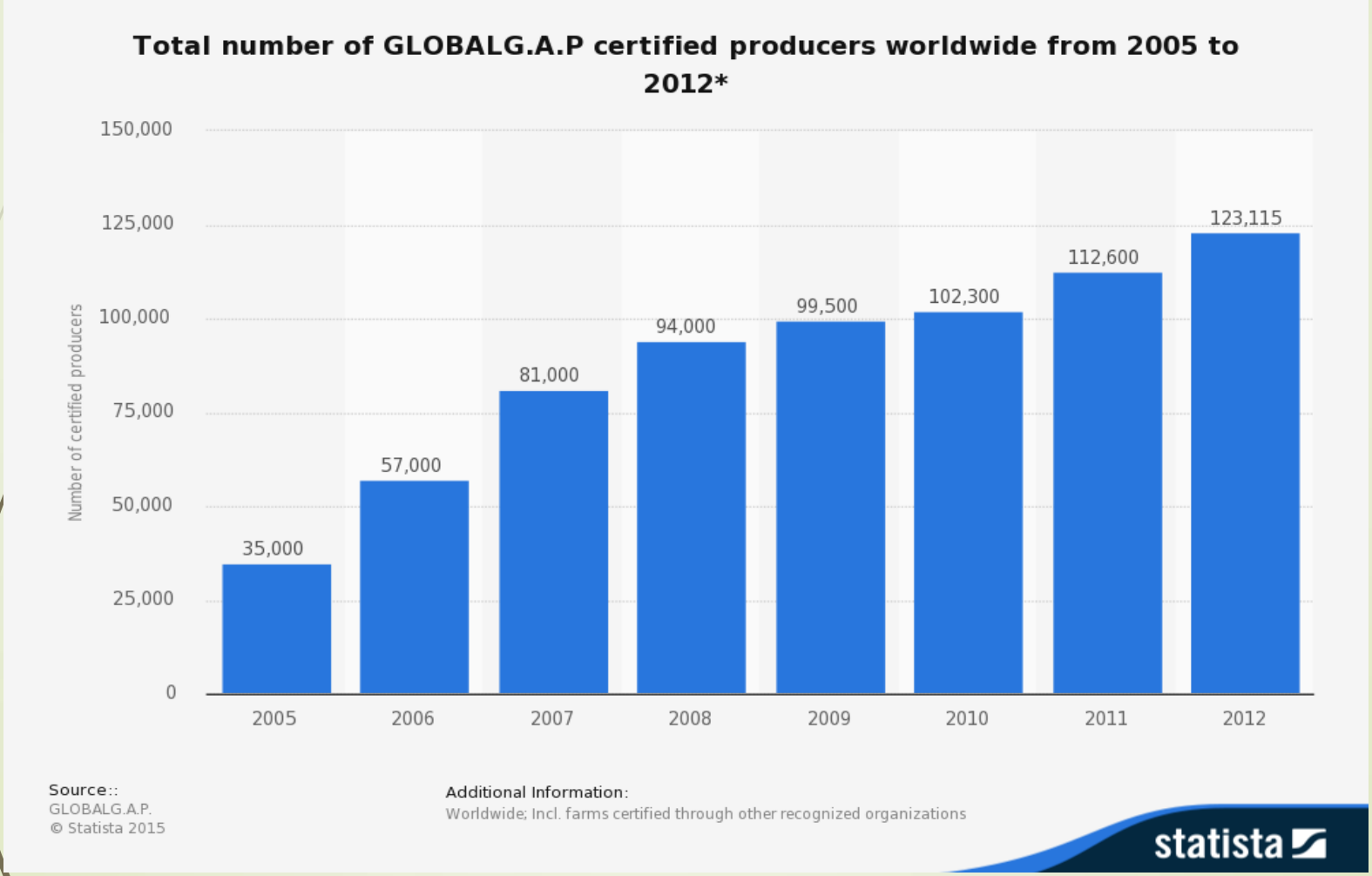
EVOLUTIONARY DEVELOPMENT

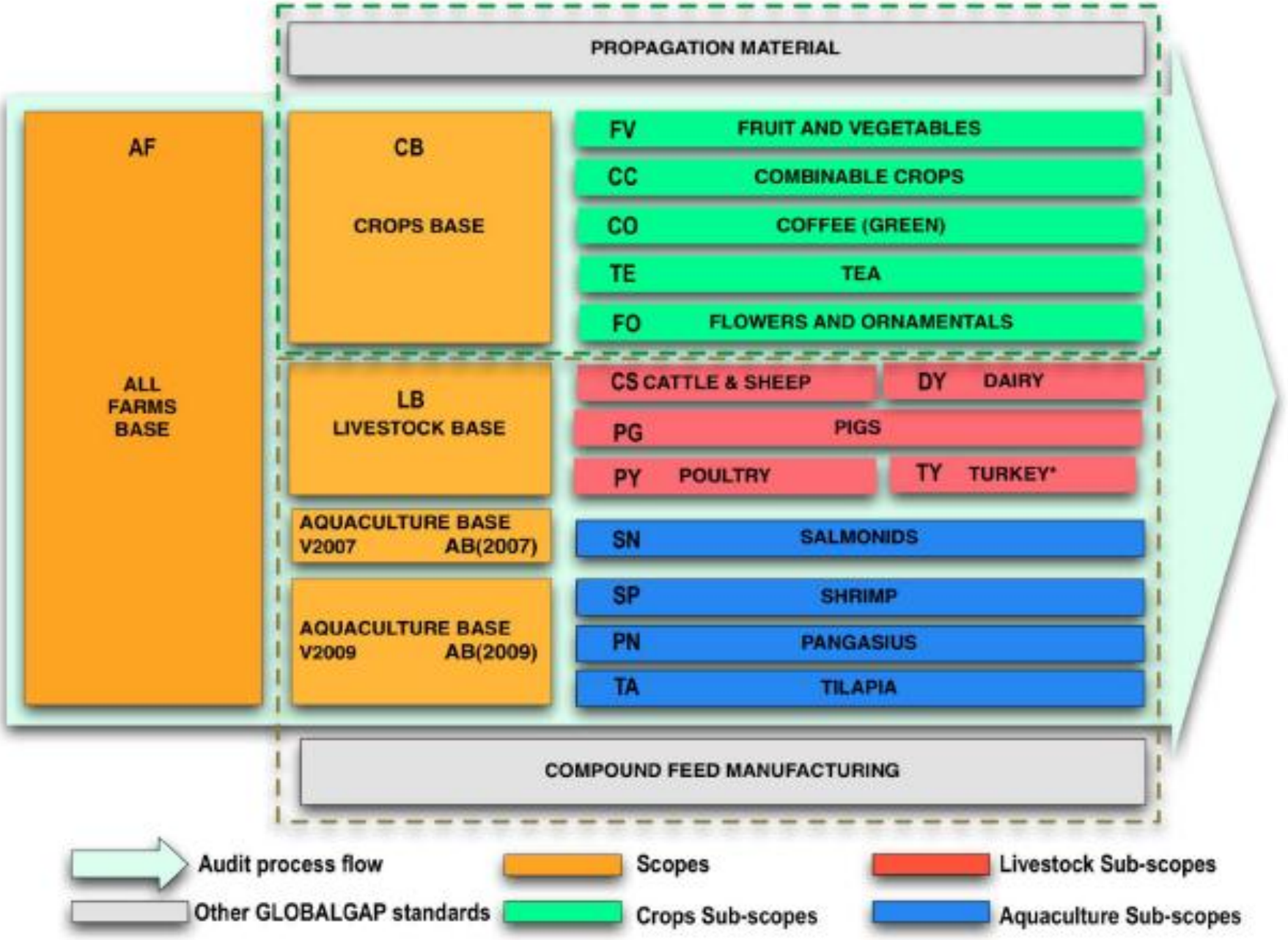


Systems, HACCP principles, Risk assessment source of microbial contamination, water testing for E.coli

Systems, HACCP principles, Risk assessment source of microbial contamination, Critical values for E.coli in water and indicators in composts, guidance on RA methodology, Metrics for water sources

Growing demands for safe produce




PROPAGATION MATERIAL
AF
ALL FARMS BASE
CB
CROPS BASE
FV FRUIT AND VEGETABLES
CC COMBINABLE CROPS
CO COFFEE (GREEN)
TE TEA
FO FLOWERS AND ORNAMENTALS
LB
LIVESTOCK BASE
CS CATTLE & SHEEP
DY DAIRY
PG PIGS
PY POULTRY
TY TURKEY*
AQUACULTURE BASE V2007 AB(2007)
SN SALMONIDS
AQUACULTURE BASE V2009 AB(2009)
SP SHRIMP
PN PANGASIUS
TA TILAPIA
COMPOUND FEED MANUFACTURING
Audit process flow
Other GLOBALGAP standards
Scopes
Crops Sub-scopes
Livestock Sub-scopes
Aquaculture Sub-scopes

المنظمة العربية للتنمية الزراعية

دليل الممارسات الزراعية الجيدة في الوطن العربي

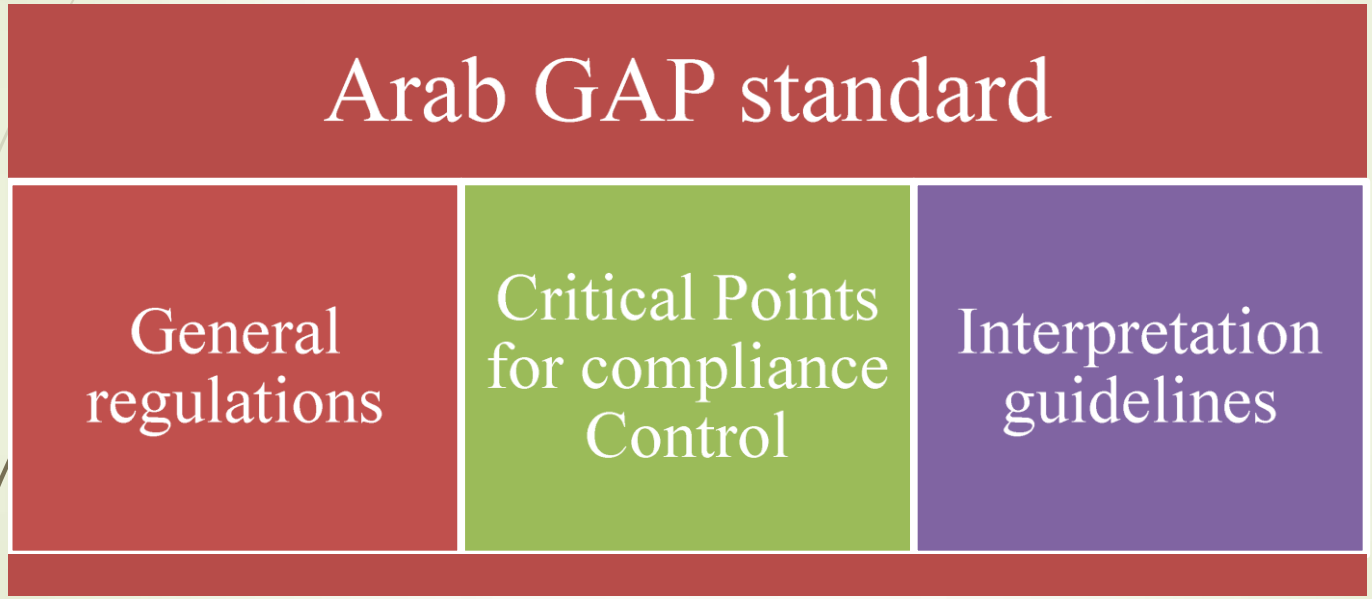
الخرطوم - جمهورية السـودان

ديسمـبر (كانون أول) 2007

Arab GAP GUIDE

The AOAD project in 2007 put emphasis on the dissemination of good agricultural practices (GAP) in the Arab countries though the development of Arab GAP guide.

Arab GAP GUIDE: 2nd Part



Arab GAP FOUNDATION

Arab GAP GUIDE: 2nd Part

- General Regulations (GR) (how the certification process works)
- Control points and compliance criteria (CPCC),
- Inspection documents referred to as Checklists (CL),
- National GAP requirements referred to as Approved National Interpretation Guidelines and harmonization tools referred to as Benchmarking Cross Reference Checklist (BMCL) and other guidelines.

Global GAP BASED PROTOCOL

No.	Section name	Major Musts	Minor Musts	Recom-mended
1	Tracebility	1		
2	Record keeping and internal self-inspection	3	1	
3	Varieties and rootstocks	1	6	4
4	Site history and site management	2	2	1
5	Soil and substrate management	1	3	6
6	Fertiliser use	2	15	4
7	Irrigation / fertigation	1		15
8	Crop protection	15	43	6
9	Harvesting	6	1	2
10	Produce handling	13	14	5
11	Waste and pollution management, recycling and re-use			6
12	Worker health, safety and welfare	2	13	9
13	Environmental issues		1	8
14	Complaint form	2		
Sum		**49**	**99**	**66**

GENERAL REGULATIONS

- Certification bodies (Audits, certification issuing)

- Parties that can apply:
  - Individual farmer/producer
  - Group producers

Trademark : ARABGAP

INSTRUCTIONS

- CPCC
- Interpretative guidelines
- Other documents: supportive for applications of the standard, annexed guides (Global GAP)

CERTIFICATION OPTIONS

Individual

- Internal inspection - at least annually
- External unannounced audits- at least annually
- External unannounced audits (10% of registered participants)

Group producer

- Centrally operating Quality system and internal audits for each individual producer- at least annually
- Traceability (certified vs uncertified products)
- External audits (random selection of farms in the producer groups)

COMPLIANCE LEVELS

- Must rules: Critical and mandatory
  - Major Musts: 100% compliance is compulsory.
  - Minor Musts: 95% compliance to this category should be maintained.
- Recommendations: No minimum percentage of compliance is set.

RIGHTS OF APPLICANTS

- Notifications (14 days) after application submission
- Certification issuing 28 days after auditing or compliance verification
- Complaints and claims
- Right to select and change CB

NON-COMPLIANCE

- Warning : Cease in case of incomplete correction (max 28 days)
- Ceasing : in case of export to EU. Banning use of the trademark and certification for a specified period of time (max.6 months).
- Cancellation. Resubmission in 12 months

Regional Framework

" Promoting Food and Water Security through Cooperation and Capacity Development in the Arab Region"

Purpose

- Assurance of safety and quality of fruits and vegetables for consumers
- Harmonize national GAP schemes and approaches within the Arab region
- Enhance the sustainability of the environment social and health welfare of workers.

Implementation

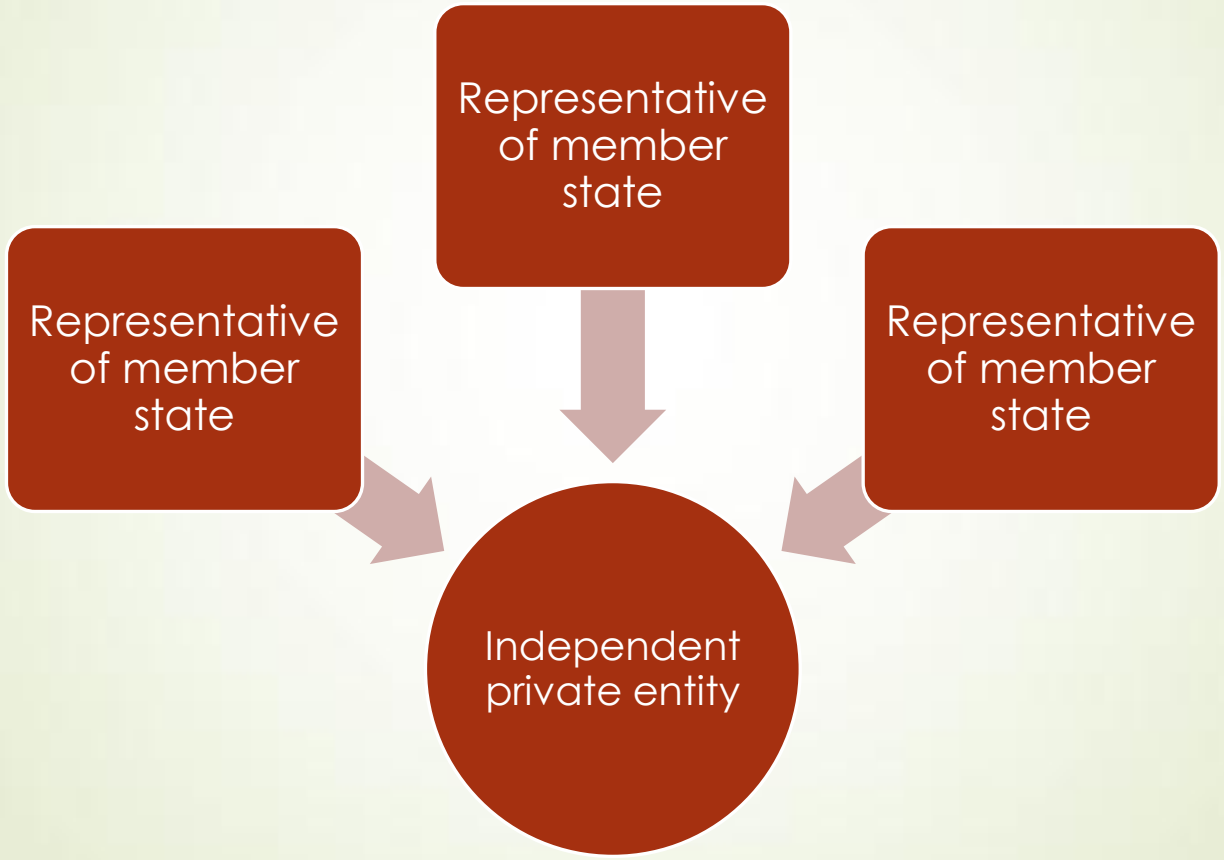
6.1
- Development of regional mechanism/ body /agency for ArabG.A.P implementation
- Development of the certification program
- Mechanism for management of regional certification process

6.2
- Agreement annexed control points and interpretation guidelines
- Finalization of ArabG.A.P codes, regulations
- Alignment of national standards with ArabG.A.P
- Network of national representatives and certification bodies

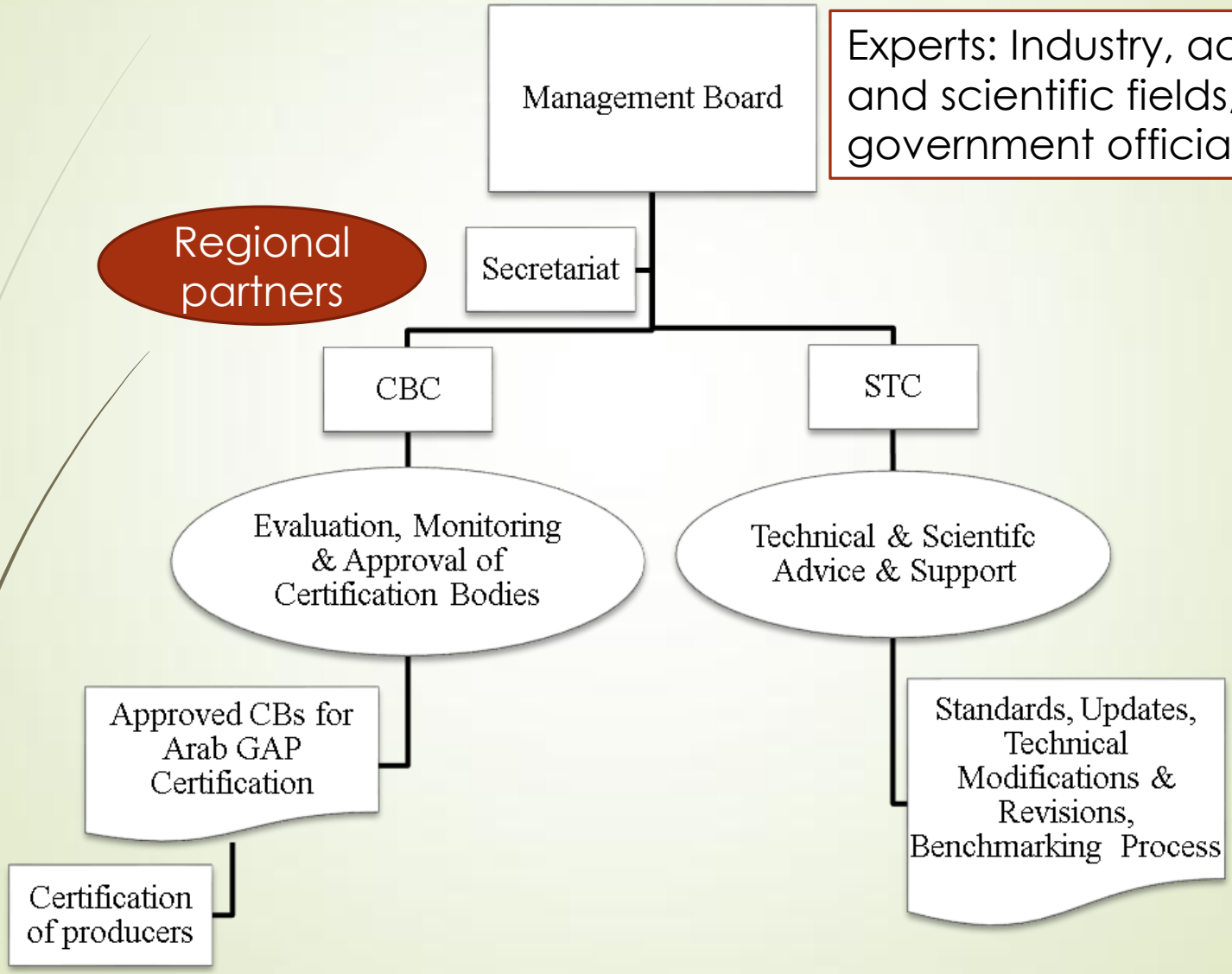
6.3
- Development of training modules and dissemination of the standard at national and regional level

6.4
- Future plan for benchmarking with GLOBALG.A.P and global recognition

Stage 1: Official and legal of the Arab GAP body / commission

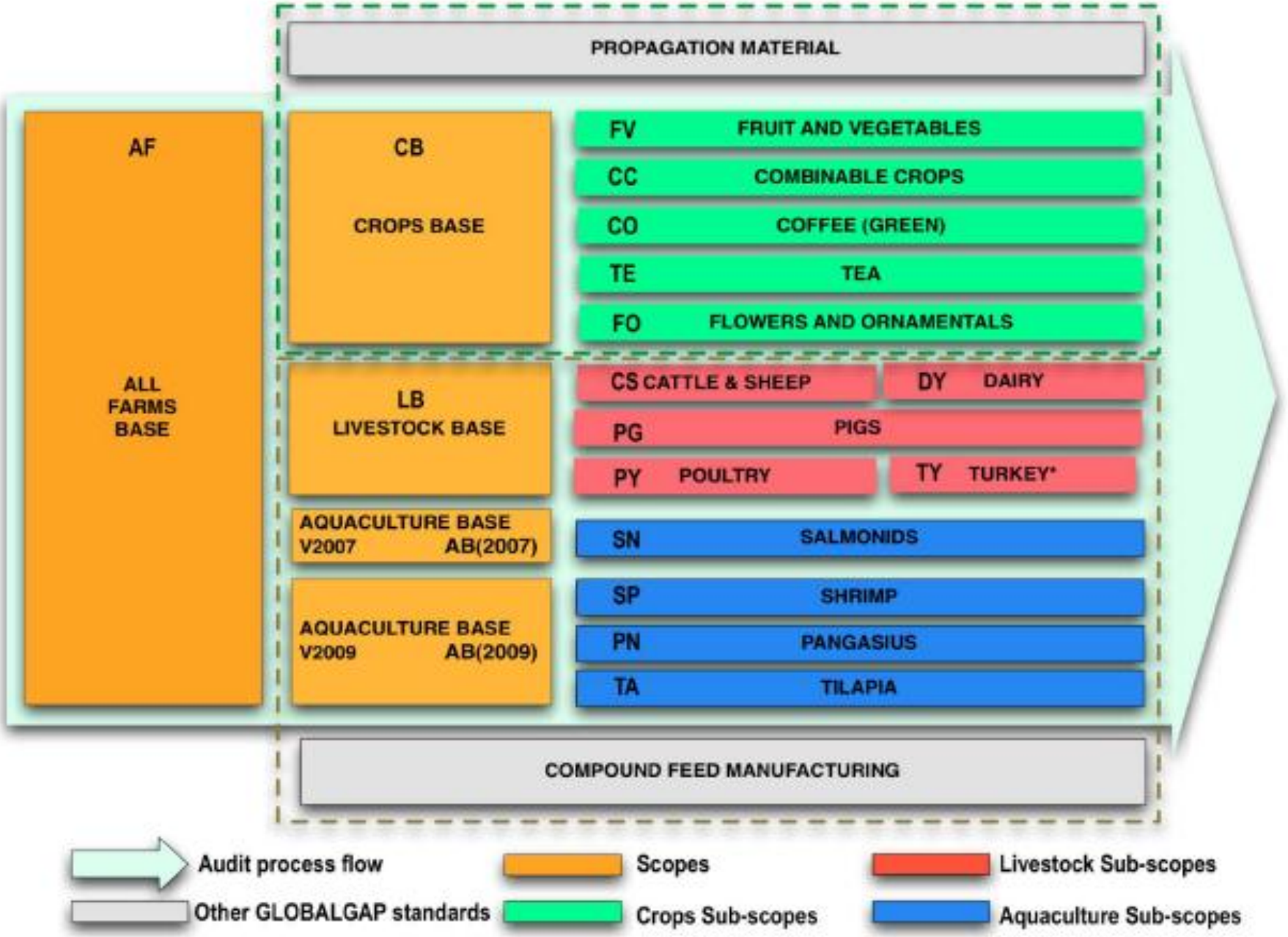


Stage 1: Official and legal entity : Arab GAP body / commission



Stage 2: REVIEW SCHEME REQUIREMENTS

- Food safety
- Environmental sustainability/biodiversity
- Food traceability
- Worker operational health and safety
- Includes Produce Handling, Integrated Crop Management (ICM), Integrated Pest Control (IPC), Quality Management System (QMS), and Hazard Analysis and Critical Control Points (HACCP)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Crops Sub-scopes
Livestock Sub-scopes
Aquaculture Sub-scopes

Farm management and operation	•Site history and management •Record keeping and internal inspection •Subcontractor •traceability and sale managment •complaint management and recall
Food Safety	•Management of soil, water and propagation materials •Fertilizers management •Plant protection product •Hygiene •Sanitary facilities •Packing and storage area •Quality control • Rodent and bird control
workers's safety and welfare	•Risk assessment of workers conditions •Training •Workers' welfare
Sustainable agriculture environment	•water conservation •waste and pollution management, recycling and re-use •Disposal of Surplus Application Mix •Environment and conservation •Energy efficiency

Stage 3: Certification body

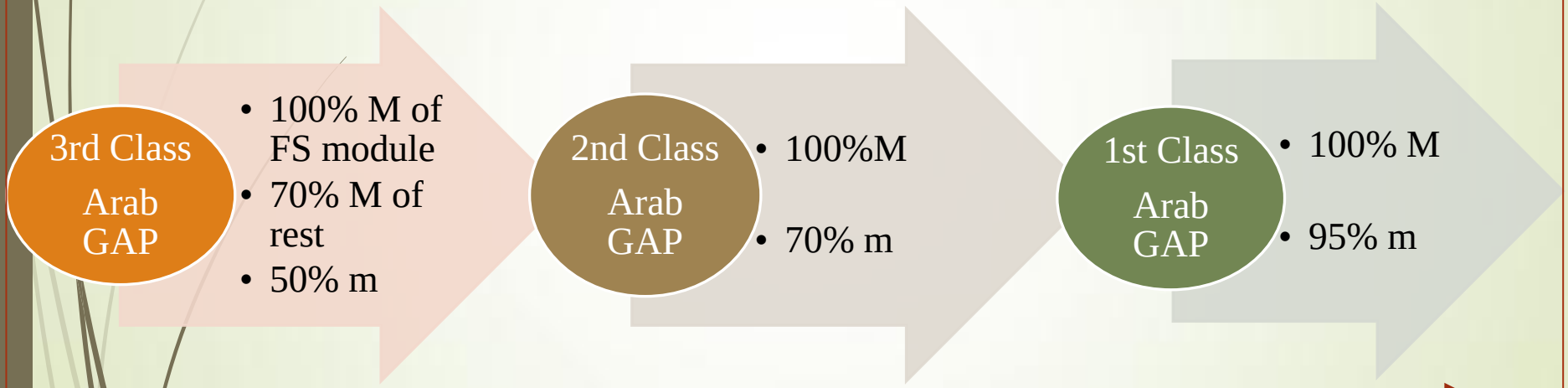
- the Department of Agriculture or a private certification body responsible for various certifications of GFSI (Global Food Safety Initiative) approved standards

- CB is an independent entity

SELECTION OF CB

- Certification scope – the produce that the farmer or farmer group require to get certified should be within the scope of the certification body which is recognized by an accreditation body
- Competence and experience of auditors in the scope.
- Cost effectiveness

Stage 4: TRANSITIONAL COMPLIANCE



Time frame

- Market driven
- Incentives
- Actual regional experiences

Stage 5: ENDORSEMENT

Stakeholders

Dissemination of the requirements and certification process shall be promoted through workshop series

- Ministry of agriculture
- Food control department
- Civic societies
- Locally active certification bodies
- Retailers

Benchmarking process

the requirements are relevant and achievable for all member countries and the extent of alignment of existing national standards with the practices in the ARAB GAP modules

Current alignment of national GAP Programs with ASEAN GAP

Country	Food safety	Environmental Management	Worker's health and safety	Produce quality
Thailand	C	P	P	C
Malaysia	C	P	P	S
Indonesia	C	C	P	P
Singapore	C	N	N	S
Philippines	C	N	P	S
Brunei Darussalam	C	N	N	N

T = Total alignment C = close alignment P = partial alignment

N = no alignment S = covered by another national standard

Table 2. National GAP programs benchmarked to the ASEAN GAP (UNEC, 2016)

Stage 6: IMPLEMENTATION: MICRO LEVEL

Producers: functions

- Identify hazards
- Decide on the threat properties (who, what, how)
- Evaluate risks and control measures
- Record outcomes, implement them
- Review assessment and update when necessary

Training workshop

A. Promotional workshops – Linkages with retailers
B. Training agricultural advisor and auditors
C. Training of farmers
D. Regional theoretical and on-field training for farmers

Practical training

- 10 farmers from each of the Arab countries will be selected for 5 days 'training on the Arab GAP concept and implementation requirements (10 -20 candidates /workshop on biannual basis) (e.g., in Morocco or Jordan)
- At the following stage, 30 leading crops producers will be invited for the implementation of the Arab GAP on their farms on annual basis for 3 years, 10 to be selected every year and trained by local trained consultants under the supervision of international consultants.
- The workshops will be combined with field visits to GAP certified producers – individual and group –shall convey the practical implementation of the standard and an overview and understanding of the documentation required to cover the procedures (including SOPs/checklists) and records keeping. The expected program duration is 5 days (one day for each module) combined with field visits to certified farms.

PROMOTION

- communication network and database of local food control authorities and agriculture departments, retailers, producers for promoting the Arab GAP concept and objectives, incentives and benefits for retailers and farmers.

Additional feedback ?