Wilna Jansen van Rijssen Conference: Critical Law and Governance Perspective n Food Security in South Africa University of the North West 18-19 June 2015

RESTRICTIONS IN GOVERNANCE OF FOOD LAWS

CONTENTS

× INTRODUCTION

- **x** Risk governance models
- ★ Fertilizers, farm feeds, agricultural and stock remedies act (Act 36 of 1947)

+ Restrictions

x GMO ACT (Act 15 of 1997)

+ Restrictions

× CONCLUSION

FOOD INSECURITY

× Access - government restrictions

Food control (safety) agency

FOOD SAFETY : PESTICIDES

FOOD LAWS: PESTICIDES

 Fertilizers, farm feeds, agricultural and stock remedies act (Act 36 of 1947)

+ Department of Agriculture, Forestry and Fisheries

+ Safety , efficacy and quality

- Foodstuffs, Cosmetics and Disinfectants act (Act 54 of 1972)
 - + Department of Health
 - + Food safety

GOOD RISK GOVERNANCE: CRITERIA

TRUST IN GOVERNANCE

× RISK MANAGEMENT

- + ETHICAL CONDUCT
- + ACCOUNTABILITY
- + EFFECTIVENESS

× RISK ASSESSMENT

- + INDEPENDENCY
- + SCIENTIFIC EXCELLENCE (PEER REVIEW)

× COMMUNICATION - CONSULTING

- + TRANSPARENCY
- + OPENNESS
- + PARTICIPATION





FOOD LAWS: PESTICIDES HISTORICAL

RISK ASSESSMENT (SAFETY)

	INDAC	
DoH	Peer review	DA
Toxicological	ARC – DA- DoH – Vet Faculty – DoL - DEA	registration of pesticides

DEVELOPMENT OF THE RISK GOVERNANCE MODEL



GOVERNANCE MODEL: TRANSITIONAL STAGE

TECHNOCRATIC



↑ Independent scientists

Risk assessment

Risk management



Communication¹¹

FOOD LAWS ; PESTICIDES REGULATION

× Scarce skills

+ Veterinary toxicologists

FOOD LAWS:

* WHO SHOULD BE REPONSIBLE FOR TOXICOLOGICAL ASSESSMENT OF PESTICIDES?

Food control (safety) agency

FOOD SAFETY : PESTICIDES

FOOD LAWS: GMO ACT OF 1997

× DAFF

TRENDS IN GM MAIZE HECTARE 2000-2015 HARVEST YEAR







FOOD LAW: GMO ACT RESTRICTIONS

- **1. RISK GOVERNANCE OF GMOs**
- 2. REGULATORY REQUIREMENTS
 - a) TECHNICAL
 - b) SOCIO-ECONOMIC-TRADE
- **3. COMPLIANCE COST**
- 4. Consumers' PERCEPTIONS
- **5. LABELLING OF GM FOOD**

GOVERNANCE MODEL: GMO 1.



Risk assessment

Risk management

2. GM REQUIREMENTS

- * PRECAUTIONARY APPROACH Scientific requirements
 - + Super Sorghum

× SOCIO – ECONOMIC – TRADE

+ Bt potato

× BENEFIT ?

3. COST OF COMPLIANCE & TIME: 2008-2012)

Category	Months	Cost (\$m)	
Discovery	46.7	31.0	
Construct optimisation	32.8	28.3	
Commercial event production/selection	34.0	13.6	
Introgression breeding & wide-area testing	42.0	28.0	
Regulatory Science	47.0	17.9	
Registration & regulatory Affairs	65.5	17.2	
TOTAL 2008-2012	268.0	136.0	
Regulatory cost is 25.8 % of total cost			

(McDougal 2012)

COST OF COMPLIANCE AND TIME

Trends:

- Construct optimisation commercial event selection have increased
- Overall time in testing and regulatory approval have increased.
- Actual overall time declined

GM vs NON-GM DIFFERENCES (TRANSCRIPTION LEVEL)

- Natural variation explain most transcriptomic changes among maize plants.... (Coll et al., 2010)
- Kene expression profiles of GM.... Comparable with non-GM..." (Coll et al., 2009)
- Micro-array analyses reveal that plant mutagenesis may induce more transcriptomic changes than transgene insertion (Batista et al., 2008)
- Transgenesis has less impact on the transcriptome of wheat grain than conventional breeding (Baudo, 2006)

Selection from a homogeneous population

Selection from a heterogeneous population

Crossing of existing approved plant varieties'

Agrobacterium transfer of rDNA from closely related species

Conventional pollen-based crossing of closely related species

Conventional pollen-based crossing of distantly related species and/or embryo rescue Somatic hybridization

Somacional variation (SCV)

Biolistic transfer of rDNA from closely related species

Agrobacterium transfer of rDNA from distantly related species

Blotistic transfer of rDNA from distantly related species

Mutation breeding, chemical mutagenesis, lonizing radiation



"includes all methods of breading

UNINTENDED HEALTH EFFECTS: place of genetic engineering

http://www.nab.edu/openbook/0309092094/html/4.html, oppyright 2004, 2001 The National Academy of Sciences, all rights reserved Safety 9 Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects (2004)

4. PERCEPTIONS: QUESTIONS

- **x** Is GM safe to eat?
- **x** Is it safe for the environment?
- **×** Do we need GM?
- **×** Who benefits from GM?
- **×** Are there alternatives?

PERCEPTIONS OF RISK

Lack of <u>reliable base</u> of knowledge coupled with <u>emotive fears</u>:

FEARS: Involuntary, uncontrollable immoral, unfamiliar, uncertain, catastrophic, memorable, unfair, untrustworthy

x Technological complexity leads to the public to substitute trust for knowledge

PERCEPTIONS OF RISK

Trusted opinion

Study of South African opinions:

High confidence:

Academics, church ..international organisations......

Low confidence

Business.....government

GOOD RISK GOVERNANCE: CRITERIA

TRUST IN GOVERNANCE

× RISK MANAGEMENT

- + ETHICAL CONDUCT
- + ACCOUNTABILITY
- + EFFECTIVENESS

× RISK ASSESSMENT

- + INDEPENDENCY
- + SCIENTIFIC EXCELLENCE (PEER REVIEW)

× COMMUNICATION - CONSULTING

- + TRANSPARENCY
- + OPENNESS
- + PARTICIPATION

Wilna JvR 29-Jun-15 FORUM - NETWORK ACADEMICS SCIENTIFIC **INTERNATION** MATTERS RESEARCH RENOWND **INSTITUTES** RELATED SCIENTISTS TO GMO **GOOD RISK GOVERNANCE ADVISORY** SCIENTISTS TRANSPARENCY PARTICIPATION

