

GM crops in Australia

Costs, profits and economic risks

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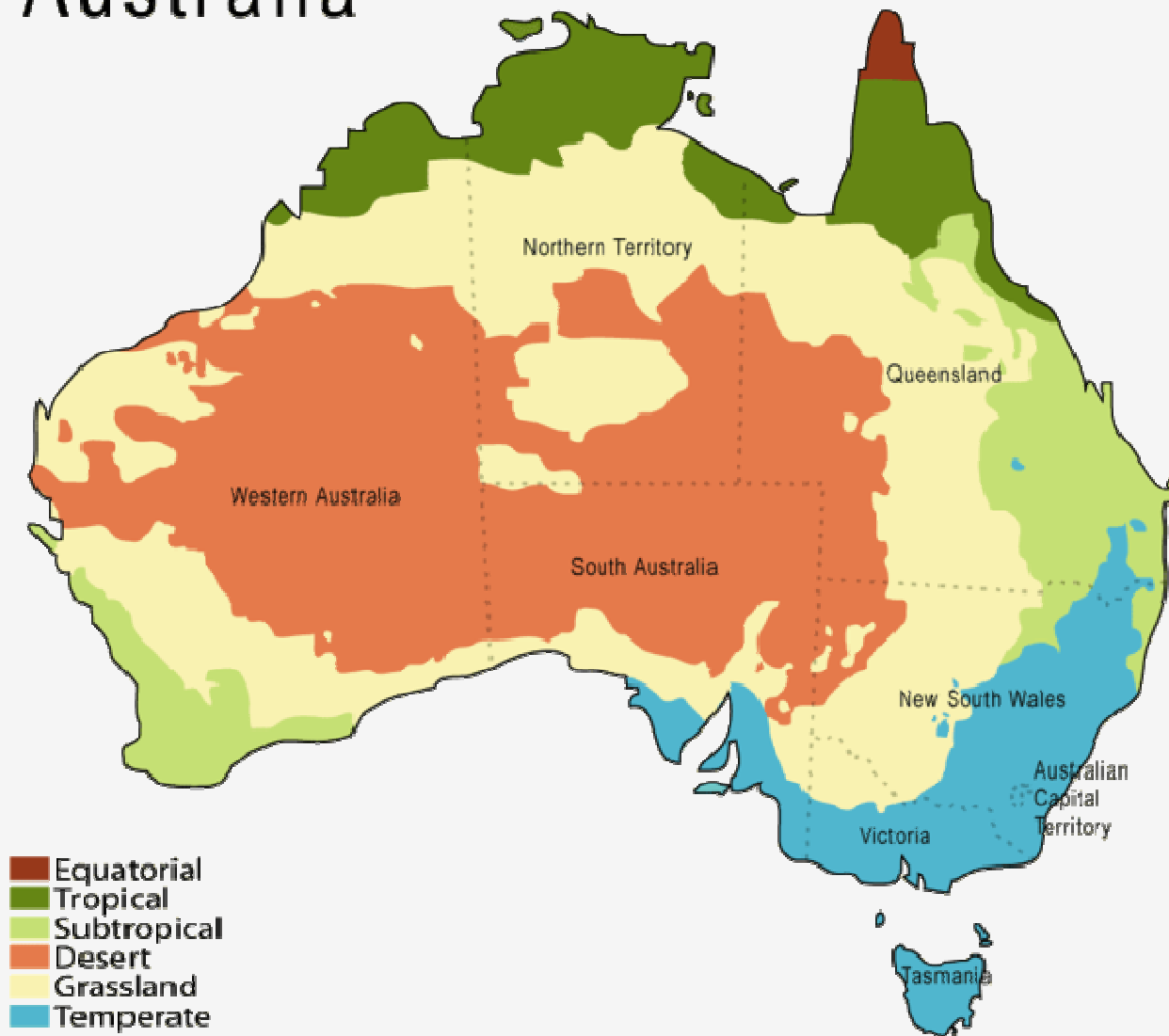
Overview

- Adoption and performance of current GM crops in Australia
 - cotton
 - Canola/rapeseed
- Risks with GM crops in Australia
 - Market acceptance/coexistence
- The GM pipeline in Australia

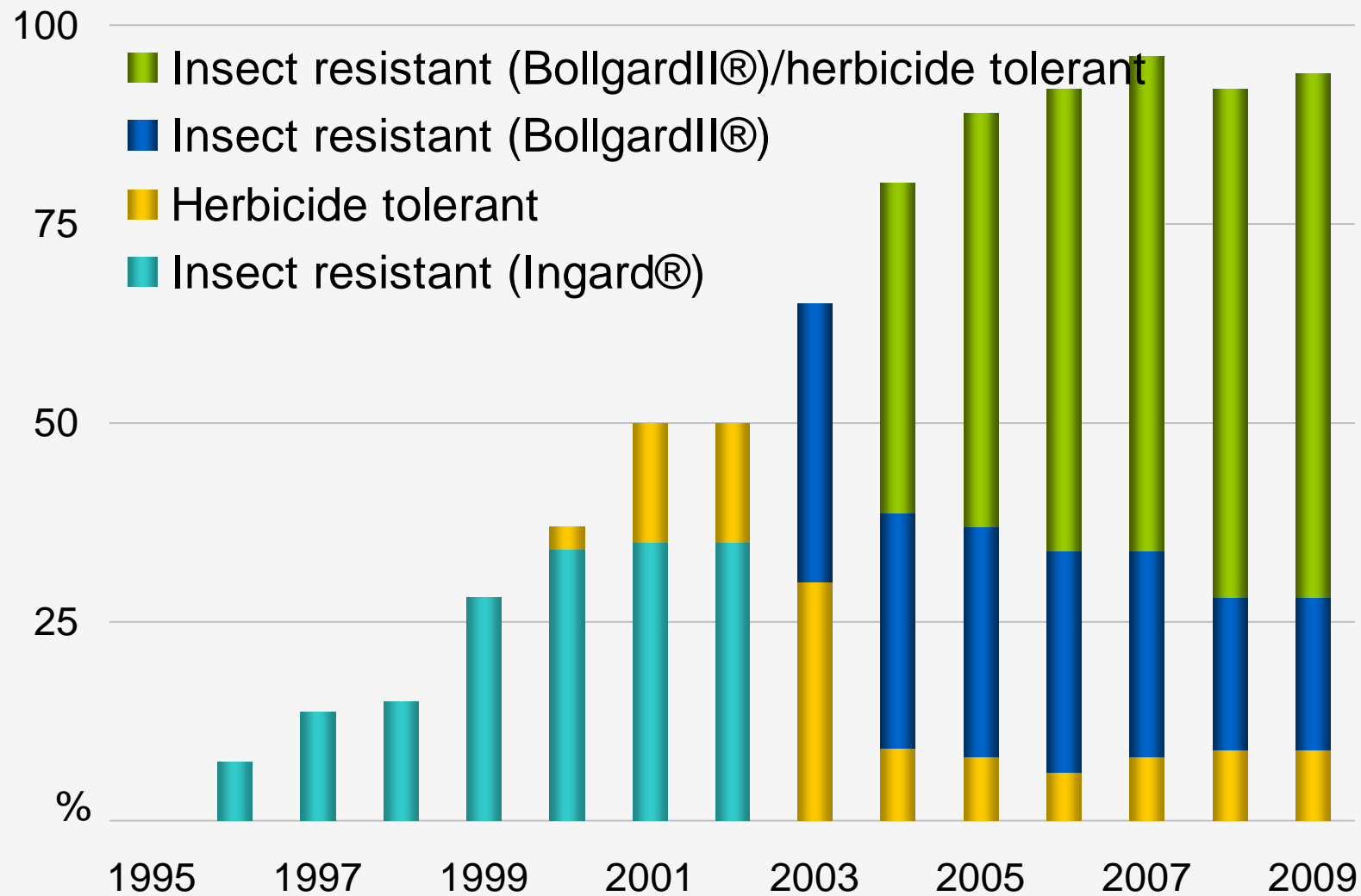
GM cotton in Australia



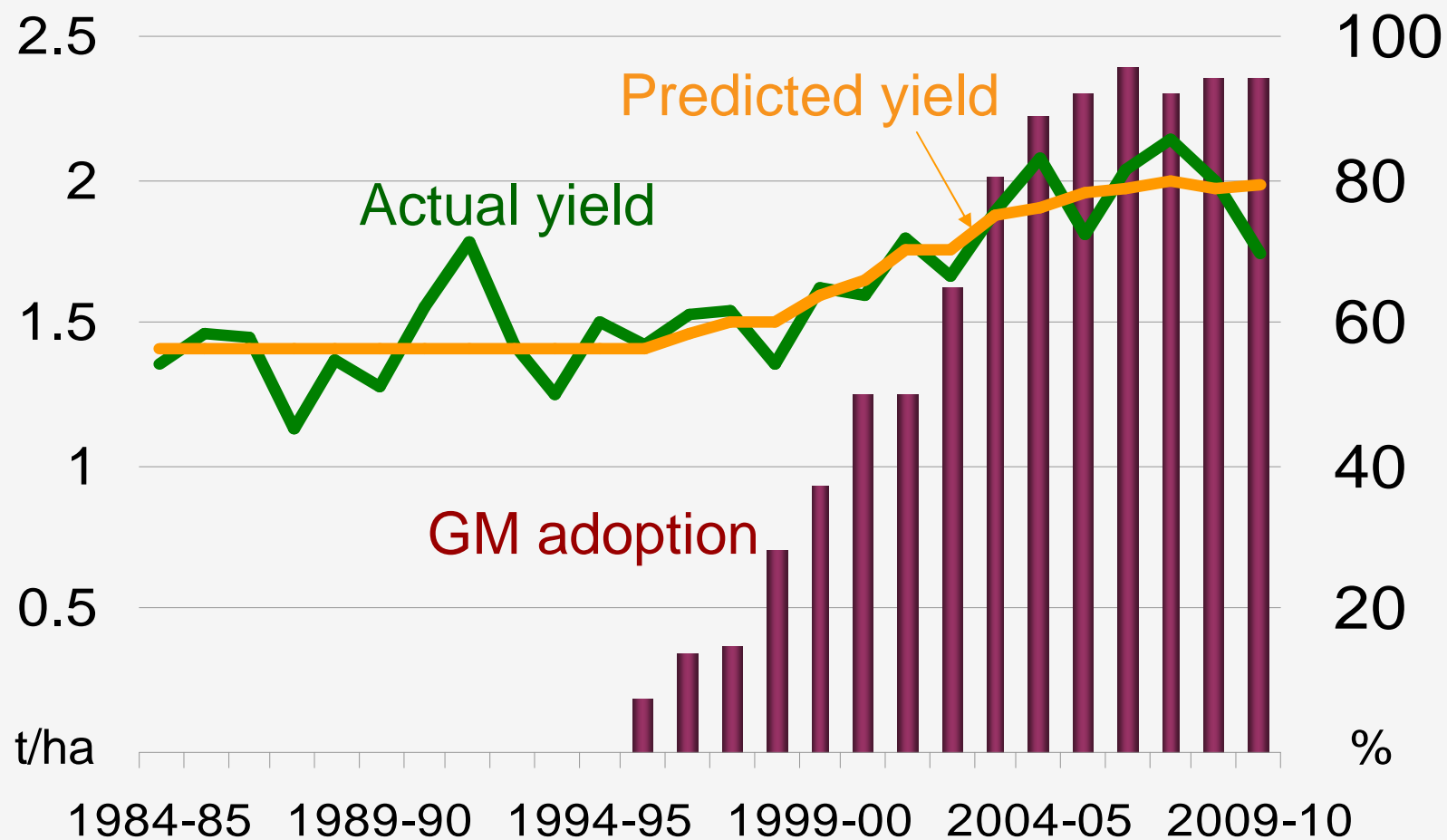
Australia



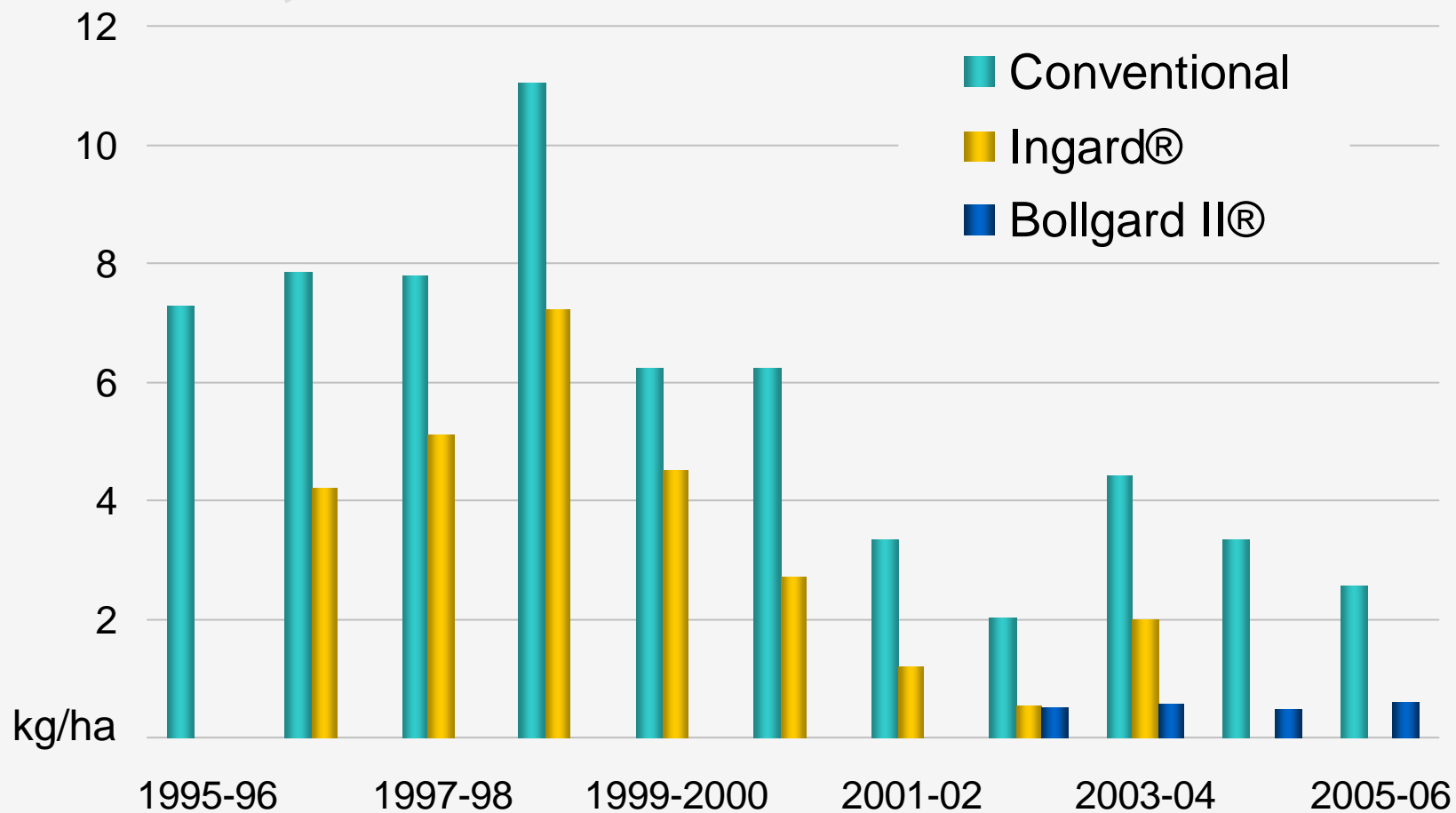
Adoption of GM cotton in Australia



Australian cotton yield

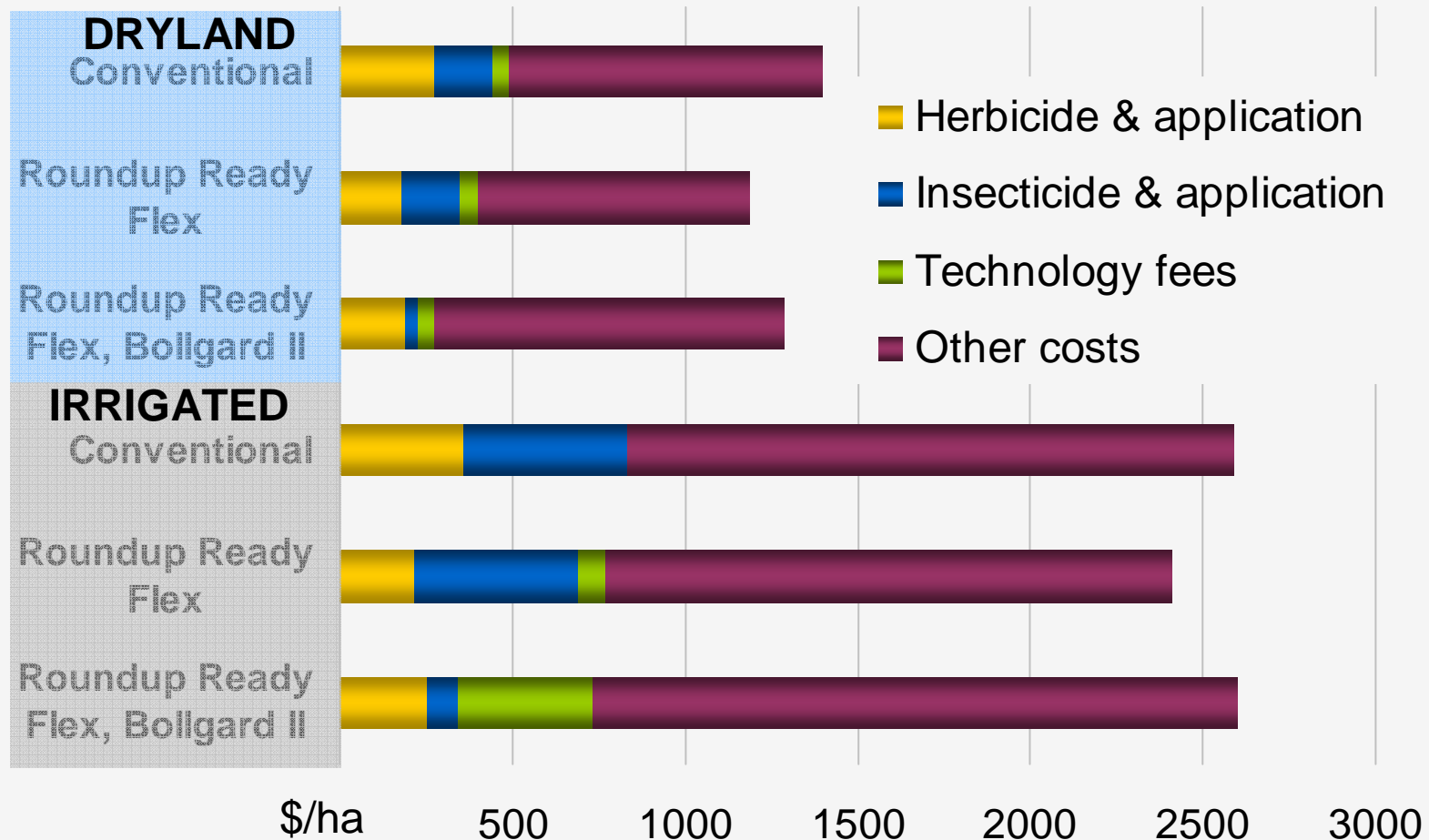


Active ingredient application rates: cotton, Australia



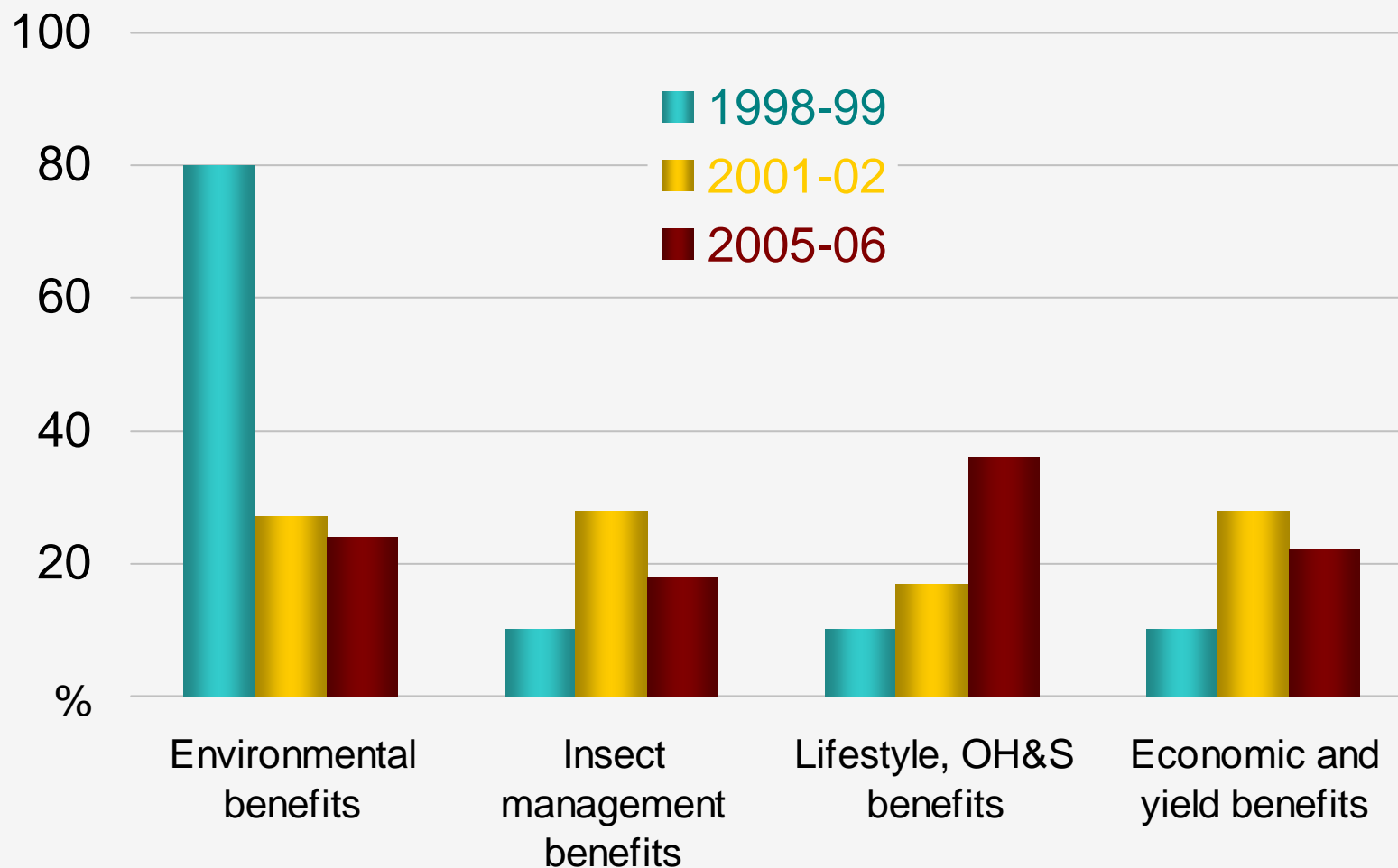
Source: Bruce Pyke, Cotton Research and Development Corporation

Variable production costs: cotton, Australia, 2009



Source: Department of Industry and Investment, New South Wales (Agriculture)

Grower experience with insect resistant cotton in Australia



Source: Bruce Pyke, Cotton Research and Development Corporation

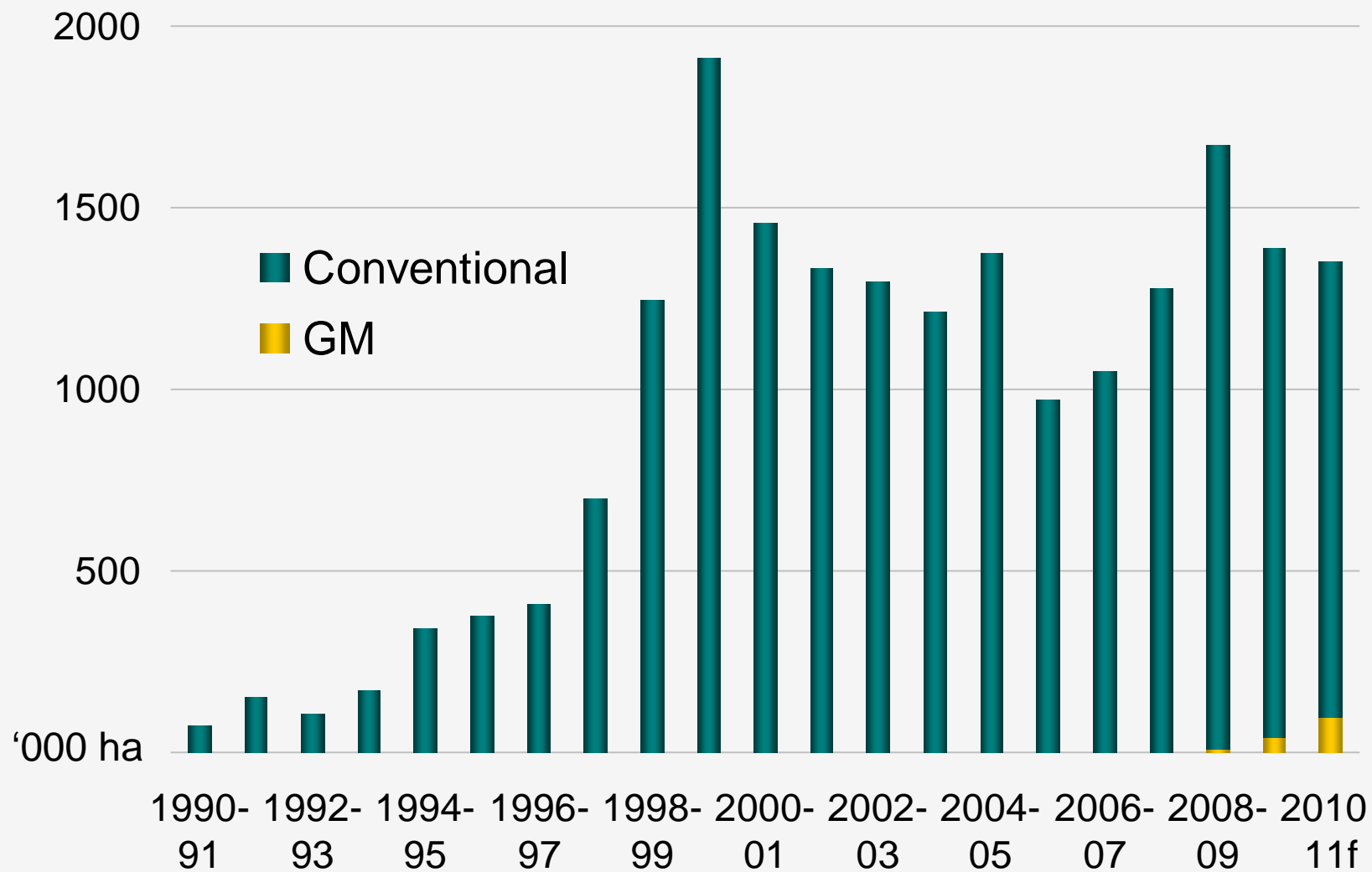
Key risks: GM cotton in Australia

Risk	Outcome
Environmental	•Assessed by the Gene Technology Regulator to be minimal
Insect/weed resistance	•Resistance management plans
High technology fees	•Risk of crop failure: offset by price discounts; crop failure refunds; end point royalties
Market acceptance and coexistence	•Not an issue with either cotton lint or cottonseed

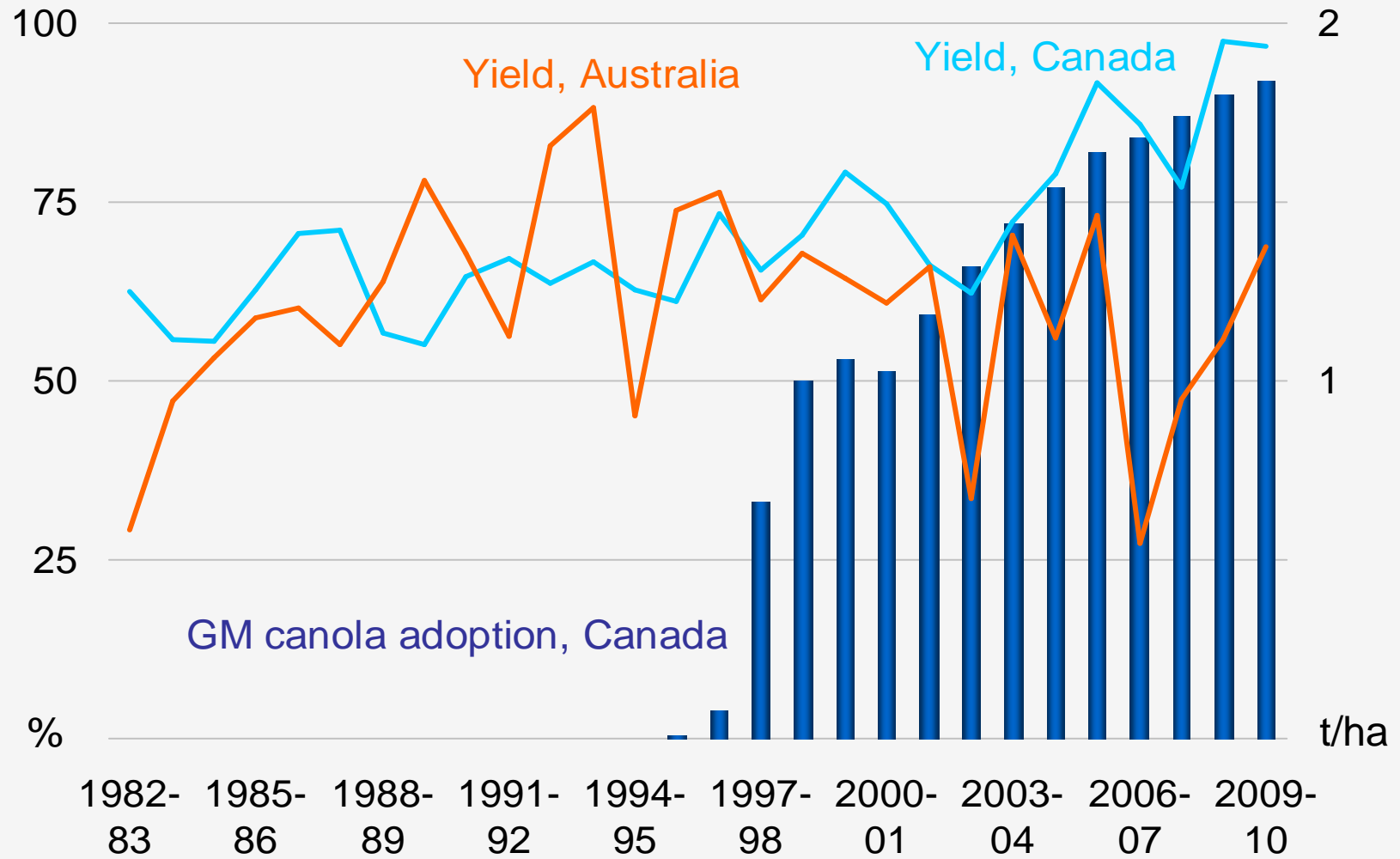
GM canola in Australia



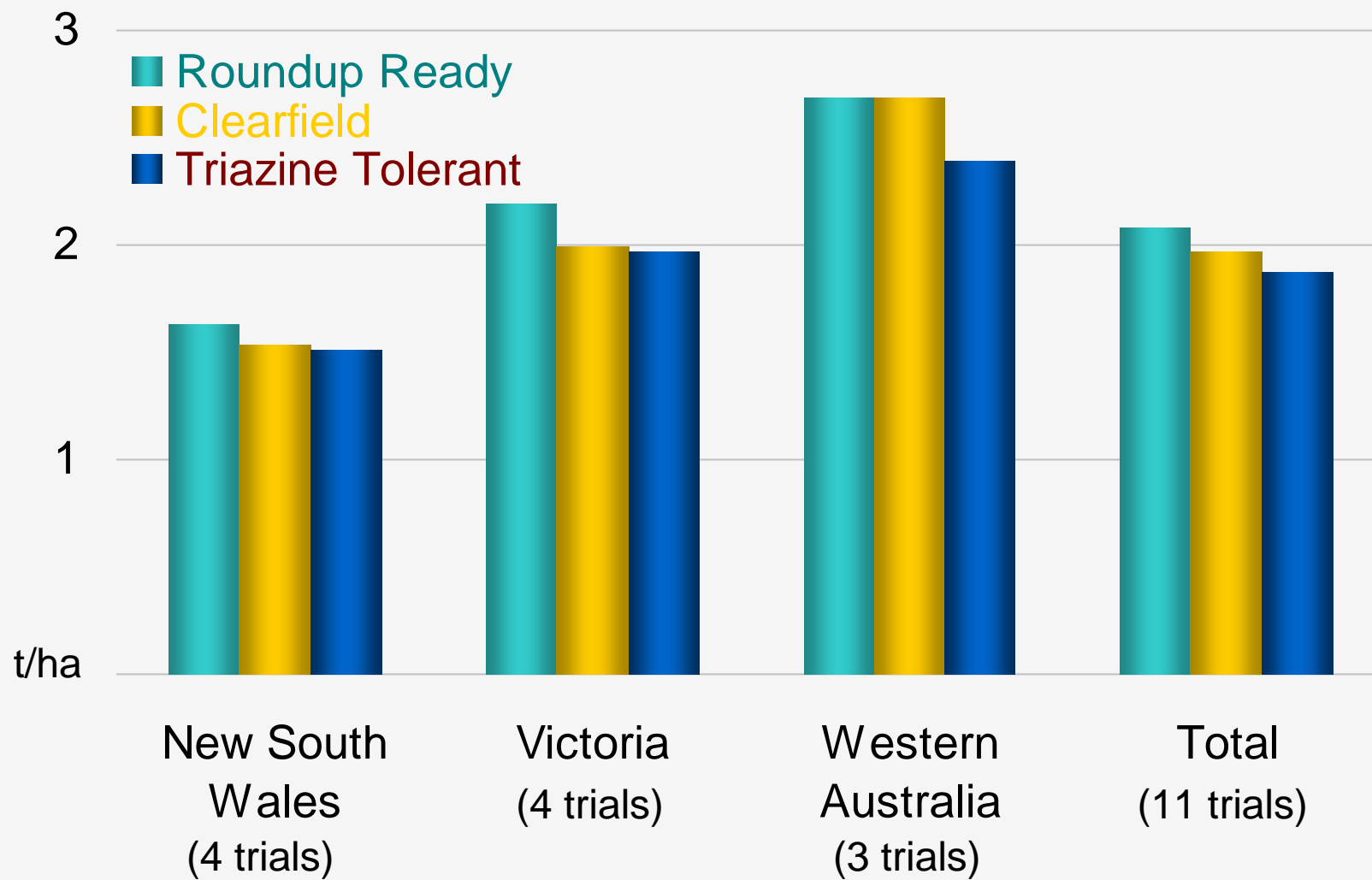
Area of conventional and GM canola in Australia



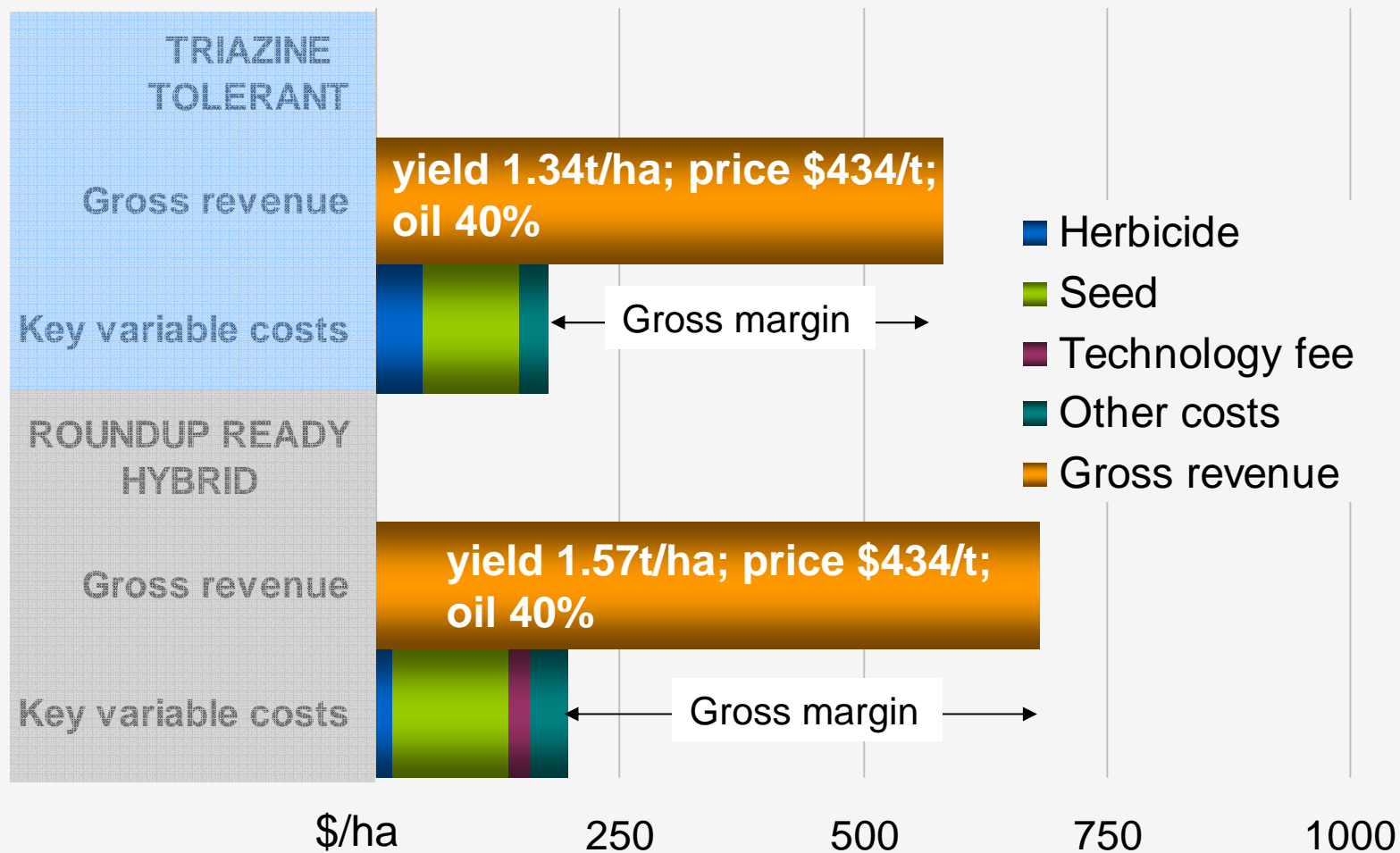
Canola yields: Australia and Canada



Australian canola yields, by herbicide system National Variety Trials, 2009



Variable costs and gross margins: canola, Australia, 2010 Monsanto Australia



Key risks: GM canola in Australia

Risk	Risk reduction
Environmental	<ul style="list-style-type: none">• Assessed by the Gene Technology Regulator to be minimal• Herbicide resistance
High technology fees	<ul style="list-style-type: none">• End point royalties
Unintended presence	<ul style="list-style-type: none">• Separation distances from non-GM canola crops• Appropriate handling and storage practices
Market acceptance and coexistence	<ul style="list-style-type: none">• Identity preservation and coexistence arrangements

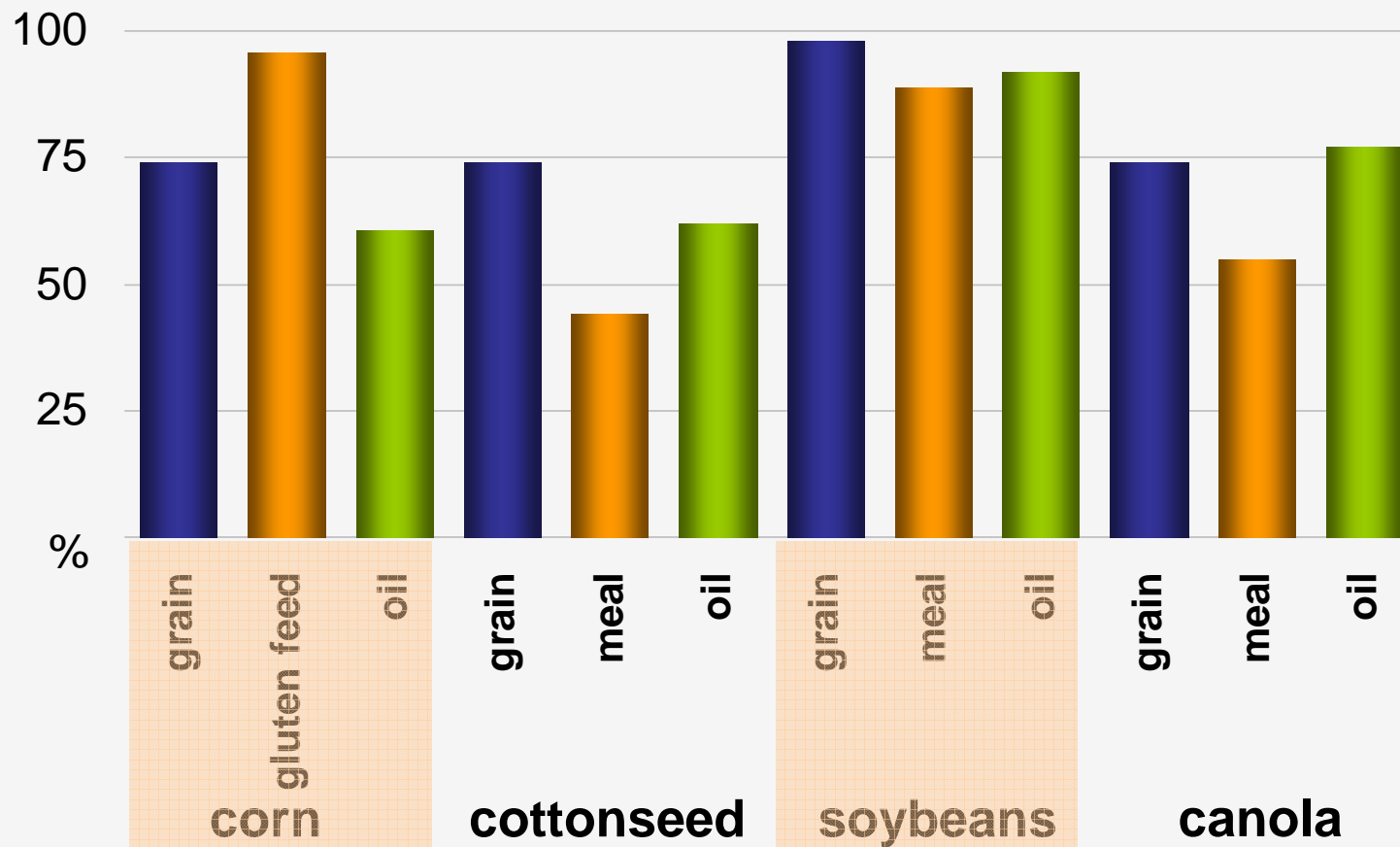
International market acceptance



Market differentiation in world grain markets

- Segments
 - Mixed grains – GM and non-GM
 - Certified non-GM
 - Organic
- Standards for unintended presence of GM materials
- Government policies, such as mandatory GM labelling, GM approval processes

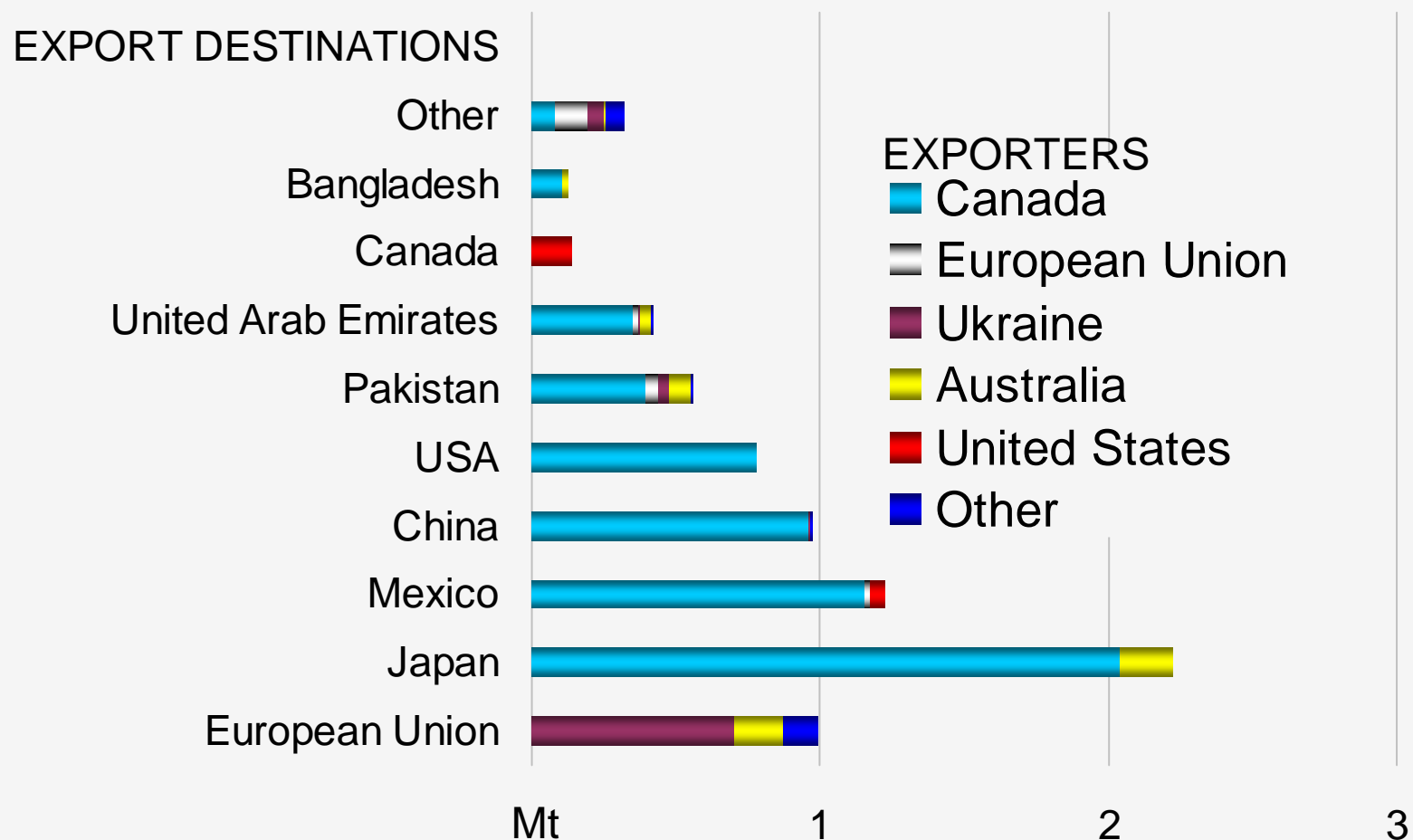
Share of world grain trade, GM producing countries excluding intra-EU trade



Evidence of price premiums for non-GM grains in world markets

- Certified non-GM grain
 - niche markets, with limited evidence of price premiums
 - mainly with food soybeans and corn, where mandatory labelling would be required
- Organic
 - about 1-2 per cent of world grain market
 - premiums of more than 100 per cent
 - probably sustainable as a niche market because of growing preferences for organically produced goods

Pattern of world canola trade, annual average, 2006-2008*



* Excludes intra-EU trade

Some recent ABARE publications

available free at www.abare.gov.au

- GM grains in Australia: Identity preservation (2006)
- Market acceptance of GM canola (2007)
- Potential economic impacts from the introduction of GM canola on organic farming in Australia (2007)
- GM crops in emerging economies: impacts on Australian agriculture (2008)
- Economic impacts of GM crops in Australia (2008)
- GM stockfeed in Australia: economic issues for producers and consumers (2009)
- Evidence of price premiums for non-GM grains in world markets (2010)

Some GM crops in the pipeline in Australia

Crop	Trait
Wheat (barley)	<ul style="list-style-type: none">• Altered grain starch composition• Salt tolerance• Nutrient utilisation efficiency• Drought tolerance
Sugar cane	<ul style="list-style-type: none">• Altered sugar production• Drought tolerance/improved water use efficiency• Improved nitrogen utilisation• Herbicide tolerance
Canola	<ul style="list-style-type: none">• <i>InVigor</i>® herbicide tolerant canola• But no sign of <i>Roundup Ready 2</i>® canola
Cotton	<ul style="list-style-type: none">• Bollgard III® ?

Summary

- GM cotton
 - High adoption rate in Australia
 - Significant agronomic and environmental benefits
- GM canola
 - Early stages of adoption in Australia
 - Initial evidence suggests agronomic benefits
 - Enables use of more benign herbicides
 - Coexistence between GM and non-GM is possible
- Various GM crops in the pipeline in Australia
 - Wheat, barley, sugar cane

GM crops in Australia

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