

農薬の食品健康影響評価の国際化について

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Internationalizing Assessments of the Health Effects of Food Containing Agricultural Chemicals

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本日お話しする項目

- 食品安全委員会について
- 残留農薬のポジティブリスト化について
 - 諸外国の協力を得つつ評価
 - 諸外国との評価の相違点
- 農薬の安全性評価に関する最近のトピック
 - 動物実験を巡る議論
 - ジョイントレビューについて



Items for Discussion Today

- Food Safety Commission
- Creation of the Positive List for Pesticide Residues
 - Assessments with the continuing cooperation of other nations
 - Differences in assessments compared with those of other nations
- Recent topics regarding safety assessments of agricultural chemicals
 - Debate over animal experimentation
 - Joint reviews

食品安全行政

内閣府

食品安全担当大臣

情報収集・交換

諸外国・
国際機関等

食品安全委員会

- ・リスク評価（食品健康影響評価）
- ・リスクコミュニケーションの実施
- ・緊急の事態への対応

その他関係行政機関

評価結果の通知、勧告

評価の要請

評価の要請

評価結果の通知、勧告

厚生労働省

農林水産省

○食品衛生に関するリスク管理

- ・添加物指定・農薬等の残留基準や食品加工・製造基準等の策定
- ・食品の製造、流通、販売等に係る監視指導を通じた食品の安全性確保
- ・リスクコミュニケーションの実施

○農林水産物等に関するリスク管理

- ・生産資材の安全性確保や規制等
- ・農林水産物等の生産、流通及び消費の改善活動を通じた安全性確保
- ・リスクコミュニケーションの実施

リスクコミュニケーション

関係者相互間の幅広い情報や意見の交換

消費者・事業者等

Food Safety Administration

Cabinet Office

Minister of State for Food Safety

Collection & exchange of information

Foreign governments,
Int'l organizations, etc.

Food Safety Commission

- Risk assessments
(assessing the health effects of food)
- Risk communication
- Emergency response

Other relevant ministries
and agencies

Notifications, recommendations
based on assessment results

Assessment requests

Notifications, recommendations
based on assessment results

Assessment requests

Ministry of Health, Labor and
Welfare

Ministry of Agriculture,
Forestry and Fisheries

○ Food sanitation risk management

- Designation of food additives, creation of standards for pesticide residues, as well as standards for food processing and manufacturing
- Ensuring food safety through monitoring and guidance of food manufacturing, distribution and retailing
- Implementation of risk communication

○ Risk management for agricultural, forestry and fishery products

- Regulating and ensuring the safety of production materials
- Ensuring safety by improving production, distribution and consumption of agricultural, forestry and fisheries products
- Implementation of risk communication

Risk Communication

Mutual exchange of a wide-range of information and opinions among stakeholders

Consumers, food-related businesses, etc.



残留農薬のポジティブリスト化について (その1)

- 平成18年5月に、ポジティブリスト制度が施行され、残留農薬基準値が設定されていない農薬を含む食品の流通を禁止
- 厚生労働省は、国際基準や諸外国の作物残留基準値を参照し、暫定基準値を設定
- 暫定基準値が設定された農薬について、食品安全委員会が食品健康影響評価を実施



Creating the Positive List for Pesticide Residues (Part 1)

- In May 2006, the Positive List System took effect, banning the distribution of food products containing agricultural chemicals for which a pesticide residue limit has not been established.
- The Ministry of Health, Labour and Welfare has consulted international standards and crop residue limits established by other nations to set provisional residue limits.
- Food Safety Commission conducts assessments of the health effects of food containing agricultural chemicals for which a provisional residue limit has been set.



残留農薬のポジティブリスト化について (その2)

- 優先評価物質を除く、大多数の農薬については、諸外国の評価などを参考に、慎重かつ迅速な**評価を行う**こととした。
- 日本において過去に評価を行った際の評価資料の他、JMPPR、米国、カナダ、豪州、NZ、EUの評価結果を参考に、安全性の評価を実施している。



Creating the Positive List for Pesticide Residues (Part 2)

- With the exception of substances for priority assessment, **assessments have been conducted** prudently and expeditiously for most agricultural chemicals by referring to the assessments and other evaluations undertaken by other nations.
- In addition to evaluation materials from assessments conducted previously in Japan, safety assessments are conducted with reference to the results of assessments made by JMPR, United States, Canada, Australia, New Zealand, and European Union.



これまでの農薬の評価件数の推移

	評価依頼 件数	評価終了 件数
2003年	8	2
2004年	16	8
2005年	16	6
2006年	22	5
2007年	101	68
合計	163	89



Changes in the Number of Agricultural Chemical Assessments

	Number of assessments requested	Number of assessments completed
2003	8	2
2004	16	8
2005	16	6
2006	22	5
2007	101	68
Total	163	89

残留農薬のポジティブリスト化について(その3)

諸外国の評価結果を参照しつつ評価することの意義

- 毒性のプロファイルなど、論点があらかじめ明確になるため、精度の高い評価を行うことが可能
- 評価の迅速化が図られる



Creating the Positive List for Pesticide Residues (Part 3)

Significance of conducting assessments with continuing reference to the assessment results of other nations

- Enables highly precise assessments to be conducted, as toxicity profiles and other points in question are clearly defined beforehand
- Contributes to accelerating the speed of assessments

残留農薬のポジティブリスト化について(その4)

諸外国との評価方法の違いも明らかに

- 毒性の指標の違い
→急性参照用量など
- データ要求項目の違い
→発達神経毒性試験など
- 毒性評価の判断の違い
→肝細胞肥大を毒性と考えるかどうか、など



Creating the Positive List for Pesticide Residues (Part 4)

Clarification of differences in the assessment methods employed compared with those of other nations

- Differences in toxicity indicators
 - Acute reference doses, etc.
- Differences in required data items
 - Developmental neurotoxicity studies, etc.
- Differences in the determination of a toxicity assessment
 - Questions such as “Is hepatocellular hypertrophy considered to be toxic?”

肝細胞肥大は毒性なのか？

我が国では肝細胞肥大を毒性と判断してきたが、国際的には、毒性所見と見なさない意見が主流になりつつある

毒性??

- 人で肝臓が腫れたら、問題だ
- 重篤な所見の前段階であり、毒性と考えるべき

適応??

- 解毒代謝の亢進による適応反応
- 可逆的なレベルであれば毒性と考えない

Is Hepatocellular Hypertrophy Toxic?

Japan has determined hepatocellular hypertrophy to be toxic, but the mainstream international opinion is coming to disregard it as a finding of toxicity.

Toxic

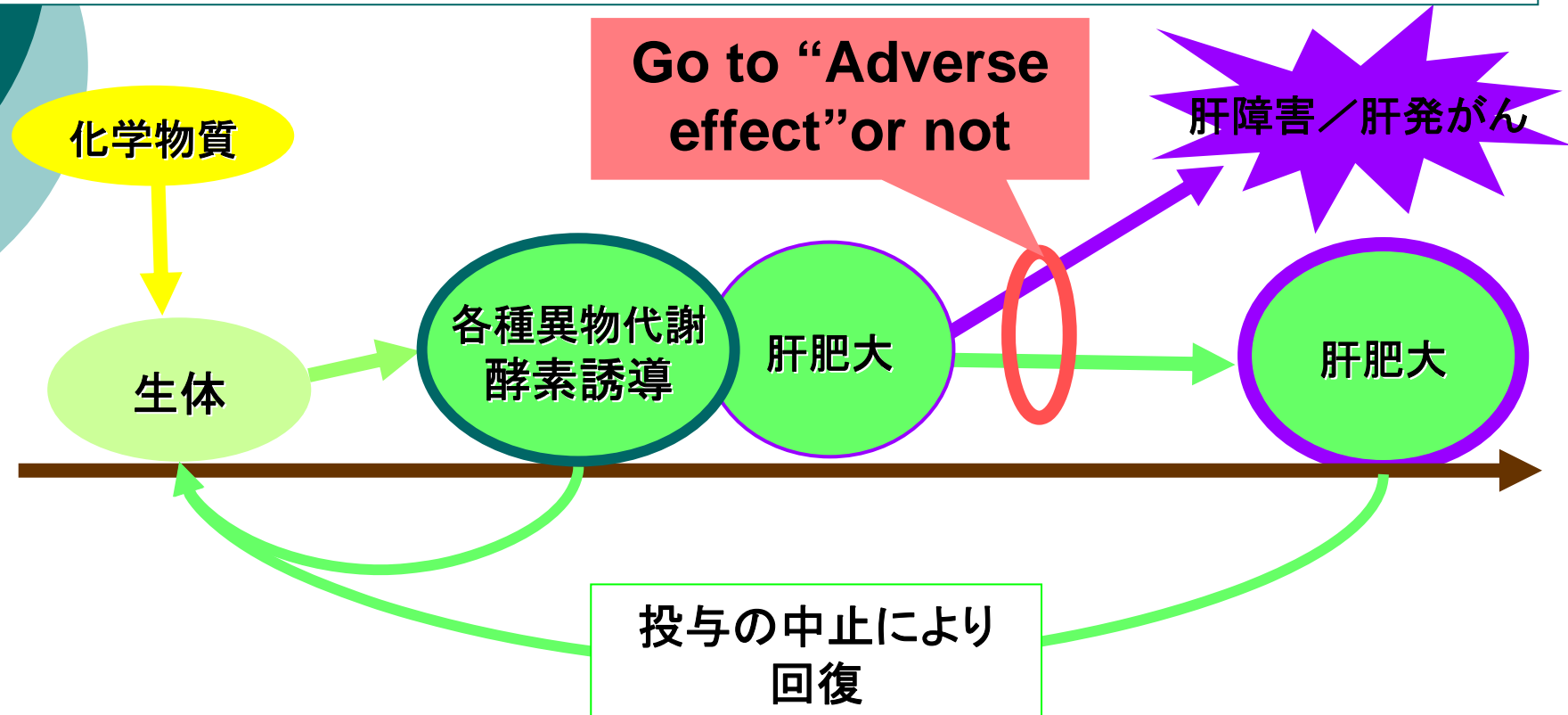
- **If the liver is enlarged, there is a problem.**
- **It is a critical finding in the preceding stage and should be considered toxic.**

Adaptive

- **Adaptive response due to enhancement of detoxification metabolism**
- **If at a reversible level, it is not considered toxic.**

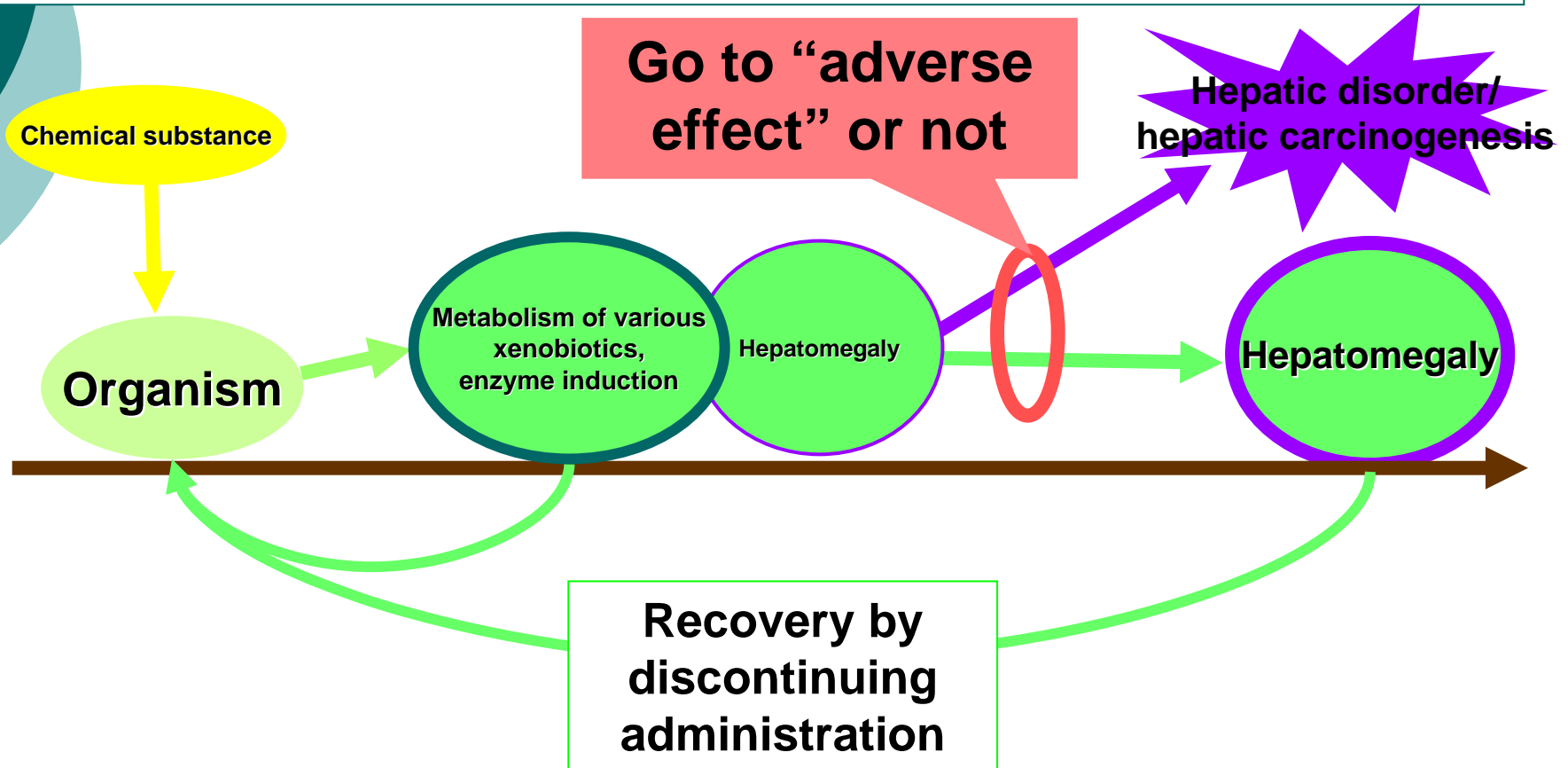
肝細胞肥大は毒性なのか？

農薬専門調査会の専門委員を中心に調査を実施



Is Hepatocellular Hypertrophy Toxic?

The expert advisers of the Pesticides Experts Committee are central to the investigation being conducted





農薬の安全性評価に関する最近のトピック

- 動物実験を巡る国際的な動向
- 農薬の国際共同評価について



Recent topics regarding safety assessments of agricultural chemicals

- International trend surrounding animal testing
- Global joint reviews of agricultural chemicals

動物実験を巡る国際的な動向

イヌの慢性毒性試験およびマウスの発がん性試験の廃止が検討されている

イヌの慢性毒性試験

- 亜急性毒性試験で見られる毒性で十分
- NOAELのレベルも、他の試験で設定される値とあまり変わらない

マウスの発がん性試験

- マウスは肝発がんの自然発生が多い
- 人への外挿性に疑問

International Trend Surrounding Animal Experimentation

A review is being conducted concerning the abolition of chronic toxicity studies on dogs and carcinogenicity studies on mice.

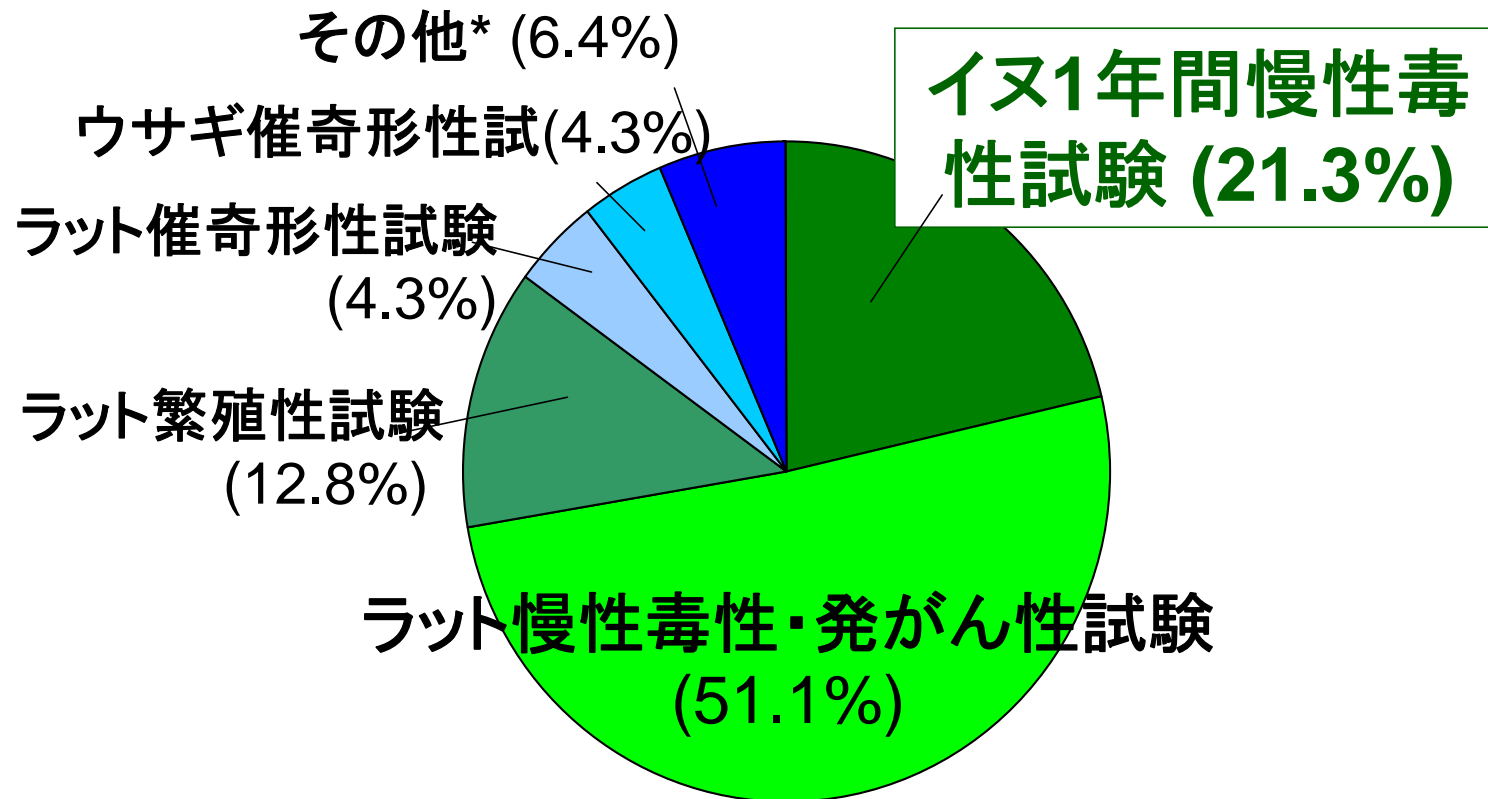
Chronic toxicity studies on dogs

- Use of toxicity observed in subacute toxicity testing is adequate
- For NOAEL as well, there is not much change from values established by other tests

Carcinogenicity studies on mice

- High incidence of spontaneous liver carcinogenesis in mice
- Questions about extrapolability to humans

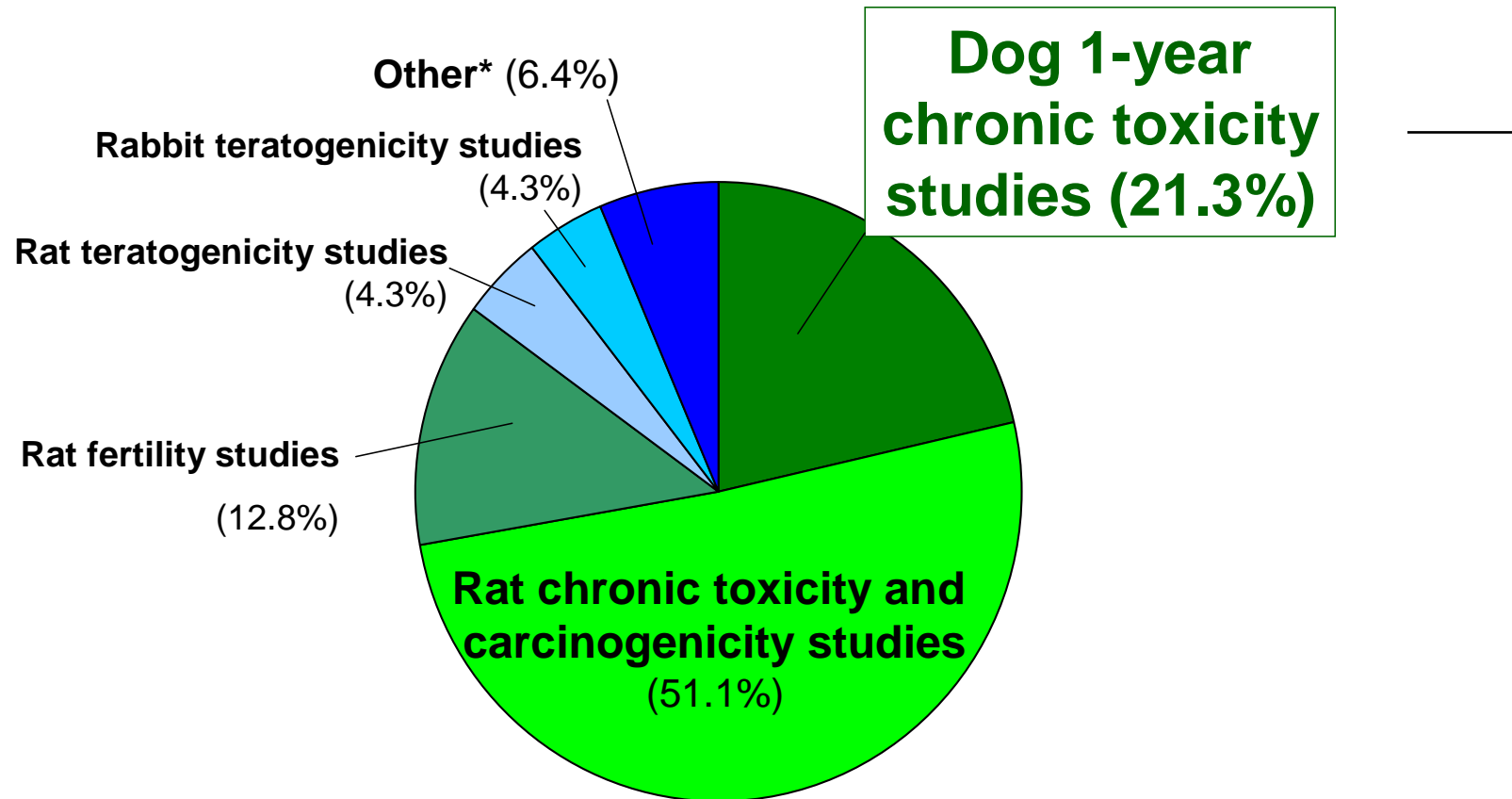
我が国におけるADI設定根拠



ADI設定の根拠となった試験の比率

*ラット・イヌ3ヶ月亜急性毒性試験とマウス催奇形性試験

Basis for Setting the ADI in Japan



Ratios of Studies Serving as the Basis for Setting ADI

*Rat / dog 3-month subacute toxicity studies and mice teratogenicity studies

マウスの発がん性試験の意義

腫瘍の発生が増加した慢性毒性/発がん性試験*: 17剤

農薬名	ラット	マウス
simeconazole	liver tumor	liver tumor
nitrapyrin	renal tumor	harderian, forestomach & liver tumor
cinidon-ethyl	parathyroid & liver tumor	—
amitraz	—	lympho/reticular neoplasm & liver tumor
tebuconazole	thyroid tumor (C-cell)	liver tumor
uniconazole P	—	liver tumor
flufenoxuron	—	liver tumor
fenbuconazole	thyroid tumor	liver tumor
boscalid	thyroid tumor	—
bifenthrin	—	urinary bladder tumor
penoxsulam	Mononuclear cell leukemia	—
flonicamid	—	lung tumor
metaldehyde	liver tumor	—
metconazole	—	liver tumor
orysastrobin	duodenum & thyroid tumor	duodenum tumor
benthiavalicarb-isopropyl	thyroid & liver tumor	thyroid & liver tumor
ethiprole	thyroid tumor	liver tumor

*, 遺伝毒性は全て陰性; -: 腫瘍の発生増加なし

Significance of Carcinogenicity Studies on Mice

Chronic toxicity/carcinogenicity studies with an increased incidence of tumors*: 17 agents

Agricultural chemical	Rat	Mouse
simeconazole	liver tumor	liver tumor
nitrapyrin	renal tumor	harderian, forestomach & liver tumor
cinidon-ethyl	parathyroid & liver tumor	—
amitraz	—	lympho/reticular neoplasm & liver tumor
tebuconazole	thyroid tumor (C-cell)	liver tumor
uniconazole P	—	liver tumor
flufenoxuron	—	liver tumor
fenbuconazole	thyroid tumor	liver tumor
boscalid	thyroid tumor	—
bifenthrin	—	urinary bladder tumor
penoxsulam	Mononuclear cell leukemia	—
flonicamid	—	lung tumor
metaldehyde	liver tumor	—
metconazole	—	liver tumor
orysastrobin	duodenum & thyroid tumor	duodenum tumor
benthiavalicarb-isopropyl	thyroid & liver tumor	thyroid & liver tumor
ethiprole	thyroid tumor	liver tumor

*All negative for genotoxicity; - :No increased incidence of tumors



農薬の国際共同評価 (ジョイントレビュー)について

- 精度の高い安全性評価を、迅速に行うことができる画期的な取組み
- これまでNAFTAなど、限られた範囲で行われていたが、近年、OECD加盟国間で共同評価を開始
- 詳しくは、ロッシ氏の講演を！！



Global Joint Reviews of Agricultural Chemicals

- Innovative approach enabling highly precise safety assessments to be conducted expeditiously
- Joint reviews were previously conducted on a limited scale within NAFTA, etc. Last year, joint reviews were started among OECD member nations.
- For more information, listen to Ms. Rossi's lecture!!



ご静聴ありがとうございました



Thank you for your attention