Crop Protection Industry Role in supporting Conservation Agriculture Development in China
植保行业在支持中国保护性农业发展中扮演的角色

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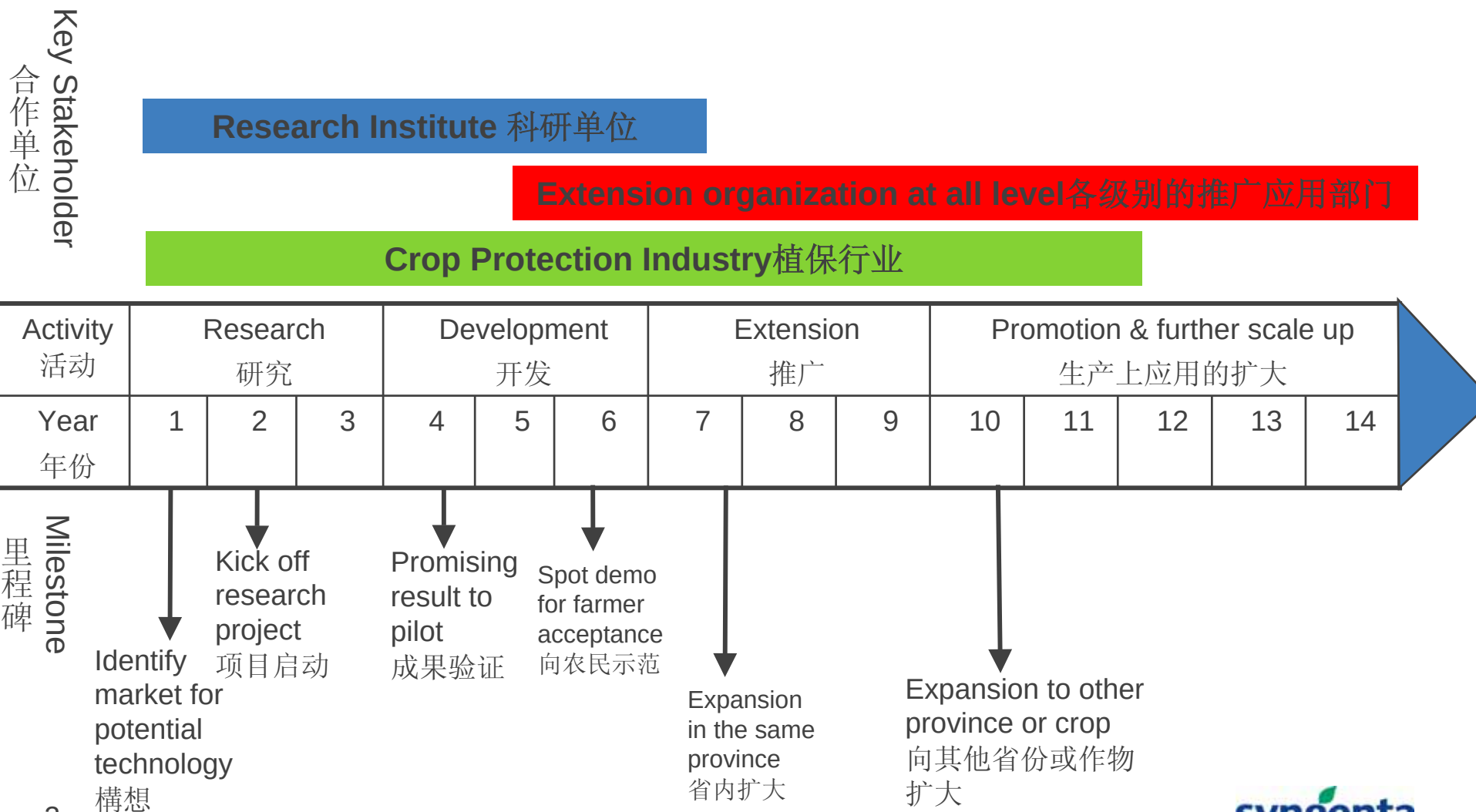
法规和技术部总监

Model of Sustainable Agriculture Development
可持续发展农业技术的开发模式



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Example 1 – Success research, extension & farmer adoption
例子1 - 成功的研发和推广，农民很快地应用于生产

Technology	Key Benefits
1. No-tillage Wheat/Canola in Sichuan小麦和油菜作物免耕栽培技术	1. Cost & labor saving 经济、环境效益
2. No-tillage Cotton/Rice, Canola/wheat along Yangtze river长江下游地区免耕种植棉花/水稻和油菜/小麦	2. Cost & labor saving 经济和环境效益
3. No-tillage of Rice in Sichuan & South China四川和华南地区的水稻免耕	3. Cost & water saving 经济和环境效益
4. No/Mini tillage of Corn in Yellow river delta黄河三角洲地区的玉米免耕/少耕种植	4. Cost & labor saving 经济和环境效益


油菜免耕-稻杆还田
No-till canola – rice straw mulching


小麦免耕-稻杆还田
No-till wheat – rice straw mulching


蔬菜免耕-稻杆还田
No-till garlic – rice straw mulching


广西大面积水稻(二季晚稻)免耕
Large scale no-till rice in Guangxi (2nd season crop)

Henan河南光山县Previous crop of wheat前期作物为小麦 (8 Mu) :

Harvest收割 -> spray GMX喷洒克无踪-> irrigate灌水 -> tractor run on 机压-> rice seedling throwing抛秧

数天后(前茬苜蓿) Few days after – rice upright

No/Mini tillage of Spring Corn in Yellow river delta
黄河三角洲地区的夏玉米免耕/少耕种植

Harvest wheat then for no tillage of corn

(许昌->驻马店一带机收小麦后免耕点种玉米)

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June 2006, Xinzheng of Henan (No tillage corn)
河南新郑大面积免耕(小麦->玉米)

Example 2 - Success in research but slow in farmer adoption
例子2 -成功的研发，但推广和农民生产上应用相对滞后

Technology技术

1. Soil conservation on slope orchard in South China

四川经济林水土保持

2. Soil conservation in mid to up stream of Yangtze river

浙江坡地柑桔园水土保持

Benefits效益

1. Soil erosion prevention保土
2. Fertility retention 保肥

Farmer prefers much more on economic benefit !

农民更喜欢经济效益!

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Soil Conservation on Slope economic plantation-Sichuan & Zhejiang
四川经济林水土保持 和浙江坡地柑桔园水土保持

四川林科院

茶园用除草剂除草 与传统耕作除草相比较土壤侵蚀量明显减少

Soil erosion 土壤侵蚀量 (t.km-2. a-1):
Hand Weeding
耕作除草:277.1
Glyphosate treatment
草甘膦除草:79.8
Gramoxone treatment
克无踪除草:43.4

浙江农科院

红土坡地柑桔园使用除草剂除草:

1.水土流失减少30－47%，(每年土壤流失率为167.8 /t•hm-2)
2.有机质和氮磷钾提高10－14％。
3.产量提高4－8％。

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Example 3 – High potential on going research & extension projects
例子3 -正在进行的科研和推广项目, 在生产应用上具有很大的效益

Technology技术

1. No-tillage of Summer Corn on slope in SW China

西南坡地夏玉米免耕

2. No-tillage of Spring Corn in NW China 西北春玉米免耕

Benefits效益

1.Economic 经济

2. Environment 环保

3. Social社会

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Cost benefit of no-tillage corn on slope in Guangxi

斜坡免耕玉米地使用克无踪预防土壤流失研究

处理	投入（元/亩） Input (RMB/Mu)	产出（元/亩） Out-put (RMB/Mu)	净收入（元/亩） Net Income	Soil erosion rate土壤侵蚀量(Kg/Ha) (Apr-Jul 04)
一般耕作 Conventional	种子费：20元/亩。 人工费：180 耕地费：30元/亩 肥料费：40元/亩 合计：270元	380.371公斤×1.3元/公斤 =494.5元	224.5元	124
免耕 No-till without weeding	种子费：20元/亩。 人工费：60 肥料费：40 合计：120元	177.705公斤×1.3元/公斤=231.0元	111.0元	62
免耕+克无踪 No-till with Gramoxone weeding	种子费：20元/亩。 人工费：75 肥料费：40 农药费：12元/亩 合计：147元	327.988公斤×1.3元/公斤=426.4元	279.4元	7

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No-tillage of Corn on slope in Puer of Yunan

No tillage: Corn after harvest of wheat

Corn on slop

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No-tillage of Spring Corn in NW China 西北玉米免耕

No-tillage of Spring Corn in NW China 西北玉米免耕

No-tillage of Spring Corn in NW China 西北玉米免耕

Untreated control

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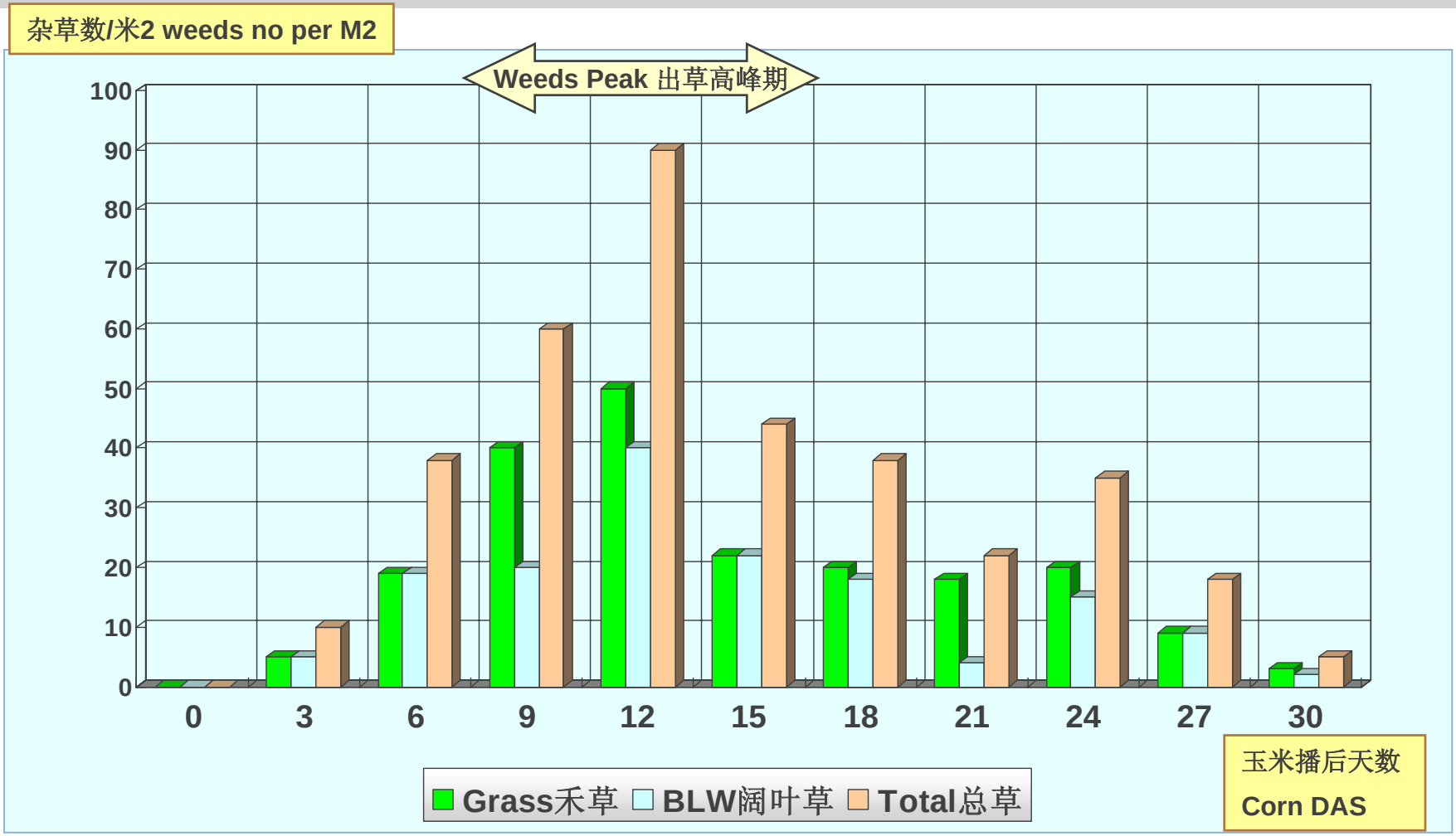
Weeds emergency in corn field 玉米田杂草消长规律



玉米播后9－15天是田间杂草发生高峰，占玉米全生育期总出草量的41.3%。这段时期是控制杂草关键期。

摘自《 杂草科学 2003年 2期 》

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New Technology to strengthen the Summer Corn No-tillage in Yellow river delta

增强黄河区域免耕夏玉米保护性耕作的技术

Current Issue目前问题

1. Wheat straw affect the performance of Pre-em herbicide

麦茬影响芽前除草剂的效果

2. Dry weather affects performance of Pre-em herbicide

干旱影响芽前除草剂的效果

3. Insufficient time to apply early use herbicide

农忙影响芽前除草剂的合时使用

4. No weeds in early stage – farmer does want to invest

农民看到草才愿意使药

Solution解决办法

Calaris is the early post-em herbicide, good to apply when weeds are in 2-4 leaf stage, completed kill of all grass & broad leave weeds

硝磺草酮作苗后早期除草-操作性强,除草效果全面和理想,配合保护性耕作

Technology is widely adopted in USA corn no-tillage

在美国普遍应用,技术成熟

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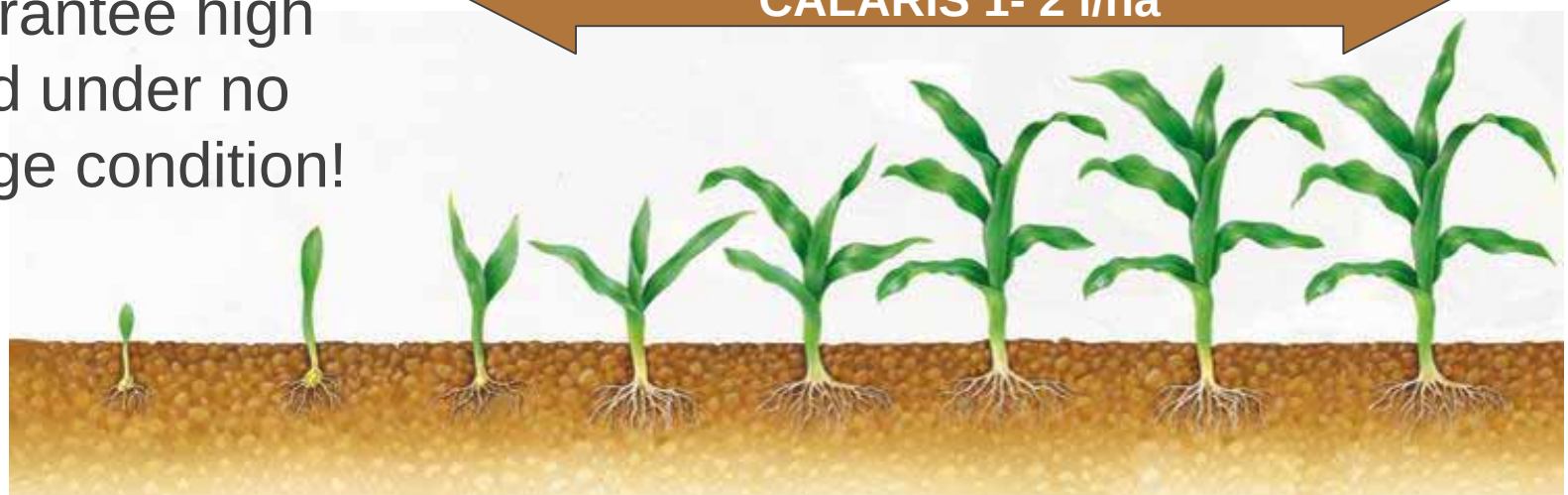
Early stage of weeds control 推荐使用技术

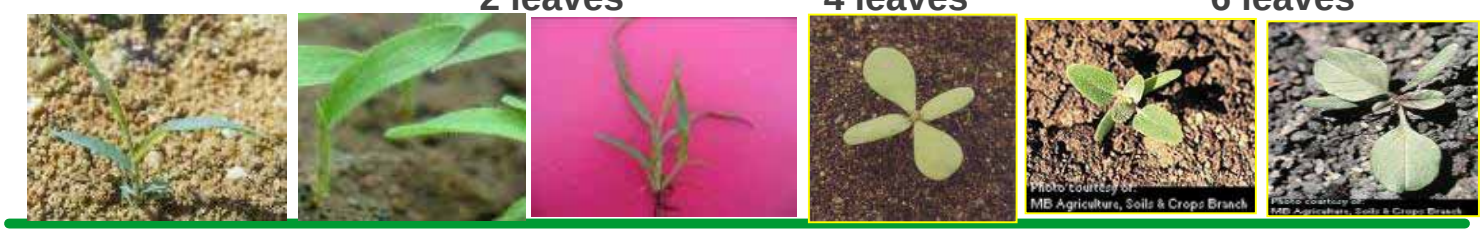
Minimize weeds impact to guarantee high yield under no tillage condition!

Annual grasses & Broad leaves at 2-4 leaf stage
一年生禾草和阔叶草

CALARIS 1- 2 l/ha



2 leaves **4 leaves** **6 leaves**



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Summer Corn no tillage in Shouguang, Shandong

Challenge
挑战

1. Farmer adoption is driven by economic – not right balance

农民主要受经济效益的驱动,其他效益不太重视

2. Long time process & on going fine tune of new technology

从创意到研究、开发再向农民推广应用于生产，是一个漫长的过程,投资大,风险高

3. Unique model in the extension and promotion

需要相应合适的推广模式作大规模普及。

4. Low market discipline leads to poor return on investment

仿冒品牌或甚至劣质产品时有进入市场,农民受损,投资回报受影响

Suggestion
建议

1. MOA could speed up those product's registration (like Mesotrione & Demand 10CS) which is proof as an important element in supporting SA technique.

对于适合可持续农业发展技术上应用的产品,应给予快速产品登记的方便,以便加快生产上应用如硝草酮和大灭10SC

2. Priority use of the existing extension network in promoting new SA technology

各级农业推广部门,应给致力于推广可持续农业发展技术的公司,提供优先的推广方便

3. High level cross ministry work to enhance & improve the market order via IPR protection, product quality compliance & regulatory enforcement

加强跨部门合作,以保护知识产权,和增强法规的执行和上市产品质量的保证

4. Extra resource allocated for the enforcement at market level to protect all stakeholders interest, especially the farmers and consumers.

投入更多的执法资源,以保障各利益相关者,尤其农民和消费者的利益

Thanks

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