



Experiences in the USA Role of IP in Enabling the Public Sector to Deliver Public Good

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U.S. Plant Variety Protection Office

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U.S. Plant Related Intellectual Property Rights Background – 3 Systems

- **PVP (1)**
 - USDA
 - For seed and tuber propagated plants
- **Plant Patents and Utility Patents**
 - Commerce Department
 - Plant patents (2) – for asexually propagated varieties
 - Utility patents (3)– for all technologies

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IP Protection → Public Good

- Reasons to Protect
- Commercialization Model
- Variety Examples
 - UC Strawberry Story
- PVP Germplasm Deposit

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Reasons for protecting varieties

- Facilitates technology transfer
 - Tool to assure broader use
 - Incentive for investments by private sector
- Control genetic identity & purity of the variety
- Generate revenue for the breeding program
- Protect U.S. industry against “unfair” foreign competition

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Commercialization Model

- Most common = Licensing of PVP, Plant Patent or Utility Patent
- Licenses can be non exclusive or exclusive, determination is made on a case by case basis
- Examples:
 - Elkton Potato
 - Black Pearl Pepper
 - Sunpreme Grape
 - University of California Strawberry

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'Elkton' Chipping Potato



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- Resistance to Internal Heat Necrosis
- Suitable for chipping directly from field in southern locations
- Solely owned by USDA-ARS, further tested under a CRADA, and protected by USDA Plant Variety Protection (PVP).
- Exclusively licensed to a for profit company.
- The PVP protects the commercial investment in the production of pathogen-free stock for a small, but very important, segment of potato farmers.

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'Black Pearl' Pepper



- Unique black foliage
- Vigorous upright bushy grow habit
- Round, black fruit maturing red with very hot flavor
- Solely owned by USDA-ARS, further evaluated under a CRADA, and protected by USDA Plant Variety Protection (PVP).
- Exclusively licensed to a for profit company.
- The PVP protects the commercial investment in marketing to consumers a new type of ornamental plant.

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'Sunpreme' Raisin Grape



- Dries on the vine naturally
- Pruning easier than typical grapes
- Raisins larger and fruitier in flavor than classical raisins
- Solely owned by USDA-ARS and protected by USPTO Plant Patent.
- Non-exclusively licensed to for profit companies.
- The USPTO Plant Patent protects the commercial investment to redesign commercial production protocols for raisins.

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Strawberry Licensing Program UC Strawberries leader in California & World

- **Strawberry Industry in California: \$2.2 B**
- **Leader, position #1, global level**
- **In 25 years, Spanish Strawberry Industry grew up to \$1B**
 - Transfer of varieties & know-how
 - 70-90% UC Davis varieties



Licensing Program Objectives



- Benefit California industry with development of new varieties
- IP Protection -US & Global
- Create a global licensing system in production areas
- Provide funds to continue selection of new varieties

D. France
Strawberry Grower
Santa Maria, CA

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Variety improvement components

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- Yield
- Transport and shelf life
- Pick speed – labor 50% of total operating costs – plant type
- Disease resistance
- Production windows
- Appearance and flavor

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IP Protection Strategy Worldwide

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- US - Plant Patent
- Ex-US – UPOV PBR where available
- 20 – 25 countries per variety
- 560 active strawberry IP filings

(12) **United States Plant Patent** (10) Patent No.: **US PP16,228 P3**
Shaw et al. (45) Date of Patent: **Jan. 31, 2006**

(54) **STRAWBERRY PLANT NAMED 'ALBION'**

(50) Latin Name: *Fragaria ananassa* Duch.
Varietal Denomination: **Albion**

(75) Inventors: **Douglas V. Shaw, Davis, CA (US);
Kirk D. Larson, Irvine, CA (US)**

(73) Assignee: **The Regents of the University of
California, Oakland, CA (US)**



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Worldwide Fruit Production UC Strawberry Varieties - Examples



Watsonville/Salinas

- Albany, WA, Australia
- Coastal Portugal
- UK
- South Island, NZ

Central and S. Coast

- Mediterranean basin
- Western Cape, SA
- Perth, WA, Australia
- Auckland, NZ
- Baja California, MX

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U.S. PVP Germplasm Deposit and Release to the Public

- PVP Requires a Deposit of Propagation Material
 - Seeds or in vitro samples (for potatoes)
 - Stored at the USDA National Laboratory for Genetic Resources Preservation (NLGRP) or acceptable repository
 - Germplasm is available only with applicant's permission through PVPO
 - Parents of hybrid varieties must also be deposited

Expired U.S. PVP Germplasm

- Germplasm becomes publicly available after the PVP certificate expires
- Expired PVP germplasm is made available through Germplasm Resources Information Network (GRIN) (<https://npgsweb.ars-grin.gov/gringlobal/search.aspx>) to researchers worldwide
- 50-100 seeds are provided free of charge to a qualified requester
- This germplasm is increased as needed and maintained by the NLGRP

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IP Protection → Public Good

- Variety Examples
- PVP Germplasm Deposit

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Thank You

Questions?