

Production Risk Management for Fruit Growers

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What is Production Risk?

- The risk that production YIELD will be lower than desired due to weather or some other unpredictable event
- What about QUALITY loss? Yes, that counts as production risk too!
- *If you've been growing fruit for long, you probably know and understand your production risks quite well!*

Examples of YIELD loss

- Spring frost reduces fruit set in a block of apples that normally produces 800 bushels/acre – now there are only 200 bushels/acre to pick
- Birds get into a Pick-Your-Own blueberry patch just ahead of what are *now* unhappy customers – PYO revenue is reduced by 50%



frost-damaged petals

Examples of QUALITY loss

- Hail hits a fresh fruit apple orchard – now the remaining fruit is suitable for processing only, reducing gross \$\$\$ returns substantially
- Failure to apply a timely insecticide to strawberries results in plant bug injury that is unacceptable for the fresh fruit market

Hail damage to apples



SOURCES of Production Risk

- ADVERSE WEATHER
- PEST DAMAGE
- INPUT TIMELINESS/QUALITY
- MACHINERY BREAKDOWN
- LACK OF PRODUCTION KNOW-HOW

ADVERSE WEATHER

- Hail
- Drought
- Frost
- Extreme heat and cold
- Wind (hurricane, etc.)
- *All are largely uncontrollable, however, risk management seeks to AVOID, SHIFT, REDUCE, or INSURE against adverse weather*



PEST DAMAGE

- Insects
- Diseases
- Mammals
- Birds
- Weeds



- *Pest pressure varies by fruit crop, however, to AVOID loss caused by pests, growers need to use timely inputs, get educated, and use appropriate technology*

INPUT TIMELINESS/QUALITY

- Site selection
- Cultivar/rootstock selection
- Orchard system and tree support
- Crop protectants and usage
- *Fruit growers must RETAIN a level of proficiency and education to REDUCE risk associated with poor input timeliness and quality. Technology can play an important role here.*

MACHINERY BREAKDOWN

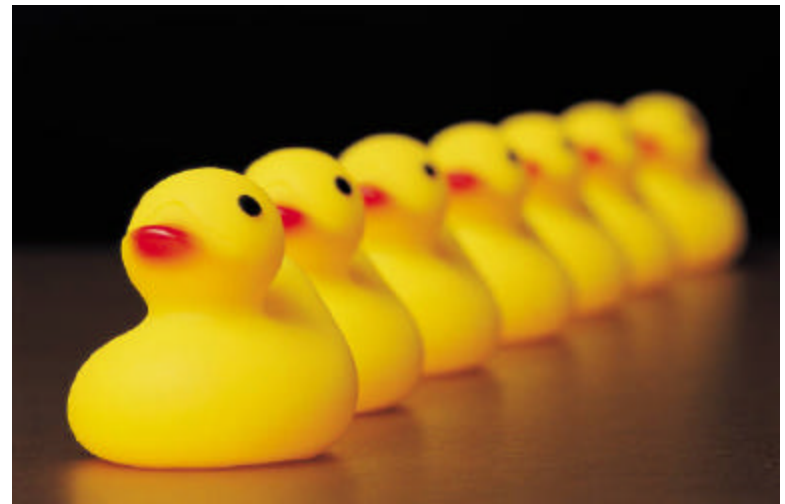
- Inconvenient at best, costly and/or a disaster at worse!
- Maintenance is the key
- Plan for obsolescence and replacement
- *Planned maintenance of tractors, sprayer, harvest equipment, etc. is the best way to REDUCE or SELF-INSURE against the risk posed by untimely machinery breakdown. A realistic replacement schedule of worn/obsolete equipment is a good idea.*

LACK OF PRODUCTION KNOW-HOW

- Site selection
- Crop protectant rates and timing
- Weather conditions: current and forecast
- Horticulture: pruning, support, nutrition, etc.
- *Education – i.e. attending Extension meetings, reading publications, joining industry organizations, etc. is critical to AVOID and SELF-INSURE against loss of yield and quality as a result of poor input decisions. Technology can play an important role to RETAIN and gain production know-how.*

RESPONSES to Production Risk

- DIVERSIFICATION
- TECHNOLOGY
- SITE SELECTION
- TIMELINESS OF OPERATIONS
- RECORDKEEPING
- CROP INSURANCE



– get your ducks in a row!

DIVERSIFICATION

- Different crops, different locations, different markets = DIVERSIFICATION
- CAUTION: Do not bite off more than you can chew!
- Enterprise analysis and recordkeeping are musts!
- Off-farm employment
- *Example: apple grower with multiple varieties and or crops (peaches, cherries, blueberries, etc.) is also a computer consultant*

TECHNOLOGY

- Protect against weather events
 - Irrigation, drainage, wind machines
- Pest management
 - Mating disruption, degree-day and 'expert' models, computers, weather stations, 'SkyBit'
- Horticulture
 - Dwarf rootstocks, improved varieties, intensive orcharding, plant growth regulators



SITE SELECTION

- Basic tenet of fruit production
- Only best sites for tree fruit
- Marginal sites may never be profitable
- Intra- and inter-farm, crop considerations
- In particular, avoid frost pockets, wet sites
- Consider leasing or buying better sites
- *Planting on a poor site is akin to planning for defeat – who would want to do that!?*

TIMELINESS OF OPERATIONS

- Pest management
- Fruit thinning
- Fertility and plant nutrition
- Pruning and training
- Harvest timing
- *Experienced fruit growers know that timeliness of inputs/operations is critical to produce a profitable crop. Sometimes you get some leeway, but often you do not – no sleeping on the job! Time and labor management!*



RECORDKEEPING

- Can't manage what you can't measure!
- Information is power to make informed decisions
- Enterprise analysis: how well are you using your inputs to produce a crop? Compare added costs to returns!
- *Good recordkeeping – although it seems like one of the more difficult task for some fruit growers – is an essential tool for managing risk!*



RECORDKEEPING Example I

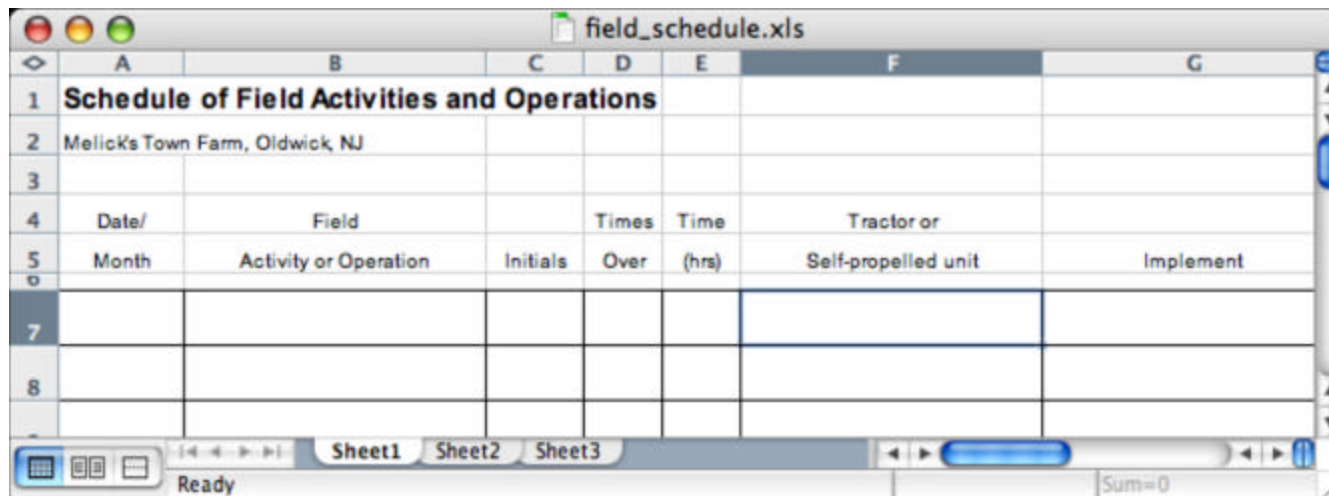
- Orchard assessment*
 - Total acreage of all fruit?
 - Total acreage of each type/age of fruit
 - Total production past year by variety? Last 4 years?
 - Total production by block?
 - Tree density: expected production?
 - % of fresh varieties with high/moderate/low market value



*From 'Harvesting Change:
A Planning Workbook for
Apple Growers
<http://www.nyfarmnet.org>

RECORDKEEPING Example II

- Schedule of field activity and operations
- Record of production
- Employee timesheet – filled out daily!
- Enterprise budget analysis



The screenshot shows an Excel spreadsheet with the following structure:

	A	B	C	D	E	F	G
1	Schedule of Field Activities and Operations						
2	Melick's Town Farm, Oldwick, NJ						
3							
4	Date/	Field		Times	Time	Tractor or	
5	Month	Activity or Operation	Initials	Over	(hrs)	Self-propelled unit	Implement
6							
7							
8							

The spreadsheet interface includes a status bar at the bottom showing 'Ready' and 'Sum=0'. The window title is 'field_schedule.xls' and the sheet tabs are 'Sheet1', 'Sheet2', and 'Sheet3'.

CROP INSURANCE

- Protects against crop disaster/loss
- Can help market more profitably
- Improve access to credit
- Guarantees minimum income level
- Reassure partners and family
- Provides peace of mind
- More on crop insurance...

CROP INSURANCE

- *A valuable risk management tool that allows fruit growers to insure against losses due to adverse weather conditions*
- *Shifts unavoidable production risks to an insurance company for a fixed \$\$\$ premium per acre*



CROP INSURANCE Products for Fruit Growers

- Multi-Peril Crop Insurance (MPCI)
 - Catastrophic Coverage (CAT)
 - Actual Production History (APH)
- Non-Insured Crop Disaster Assistance (NAP)
- Adjusted Gross Revenue (AGR)

Multi-Peril CROP INSURANCE

CATastrophic Coverage (CAT)

- Basic disaster protection (i.e. frost, freeze, hail, etc.) for eligible crops
- Replaces ad hoc disaster assistance
- Apples, blueberries, grapes, peaches, pears, etc.
- Protects against low yields
- Inexpensive
- *Every fruit grower should purchase CAT insurance for covered crops annually!*

Multi-Peril CROP INSURANCE

Actual Production History (APH)

- More flexible than CAT
- Level of coverage (and cost) elected by grower
- Apples, blueberries, grapes, peaches, pears, etc.
- Protects against low yields (and loss of quality if elected)
- *Much more expensive than CAT – grower needs to carefully consider level of coverage best suited to their fruit farm and marketing strategy.*

MPCI price elections for fruit growers

- Option of using indemnity price that reflects market for crop (peaches, apples, grapes)
- Example: apples – fresh market, processing, varietal groups
- Optional coverage for fruit quality losses from hail damage for both fresh-market and processing apples

Non-Insured Crop Disaster Program (NAP)

- Basic disaster protection for otherwise non-insured crops
- Any food (or fiber) crop for which MPCCI is not available
- Protects against low yields
- Moderate to expensive, depending on crop

Adjusted Gross Revenue (AGR)

- Whole farm insurance for multiple crops
- Almost any crop covered, including those not eligible for MPCI
- Protects against revenue (\$\$\$) loss due to low yields and or markets
- AGR 'Lite' makes for a simpler policy
- May be combined with MPCI
- – *Relatively expensive, but the only real good option for diversified fruit farms*

Why growers don't buy CROP INSURANCE?*

*Rutgers Cooperative Extension

- Unaware of available programs...
 - *Get educated!*
- Entirely Pick-Your-Own: no production records...
 - *No good reason to not keep production records – in fact, every good reason to do so!*
- Not an efficient form of risk management...
 - *By itself, perhaps not, but in combination with other strategies, very effective!*
- Too expensive...
 - *Depending on product, federally subsidized; needs to be budgeted!*

Should you buy crop insurance?



- Ask yourself these questions:
 - How have my crop yields varied from year to year?
 - What are my cash flow requirements?
 - Do I want to be just self-insured? (i.e. squirrel-away some cash for those bad years)
 - CAT coverage is cheap – does it make sense to skimp on this very basic coverage?
 - Premium discounts for higher levels of coverage are attractive – do I need them?

How do I choose a crop insurance agent?



- Ask other growers for recommendation
- Check with current insurance (auto, fire, liability, etc.) agent
- Farm business management services, i.e. Farm Credit, Farm Bureau
- USDA RMA Website agent locator
 - <http://www.rma.usda.gov/tools/agents/>

Additional Resources

- USDA Risk Management Agency 
 - <http://www.rma.usda.gov>
- Cornell's Horticultural Business Management and Marketing Program
 - <http://hortmgt.aem.cornell.edu>
- Risk Management Resources for Tree Fruit Growers
 - <http://www.umass.edu/fruitadvisor/clements/riskmanagement.html>

Good risk management =
happy and profitable fruit grower!

