THE UNIVERSITY OF MAINE

CAMF

Planning and Implementation Frameworks

Integrating Adaptation and Mitigation Plans into Farm Business Plans

Rachel E. Schattman, Associate Professor of Sustainable Agriculture
University of Maine, School of Food and Agriculture

Kate Holcomb, Northeast Farm & Forest Resilience Fellow
USDA Northeast Climate Hub

Mark Cannella, Extension Associate Professor & Farm Business Management Specialist
University of Vermont Extension

Climate Adaptation and Mitigation Fellowship
www.adaptationfellows.net
https://agroecolab.com/

The Agroecology Lab

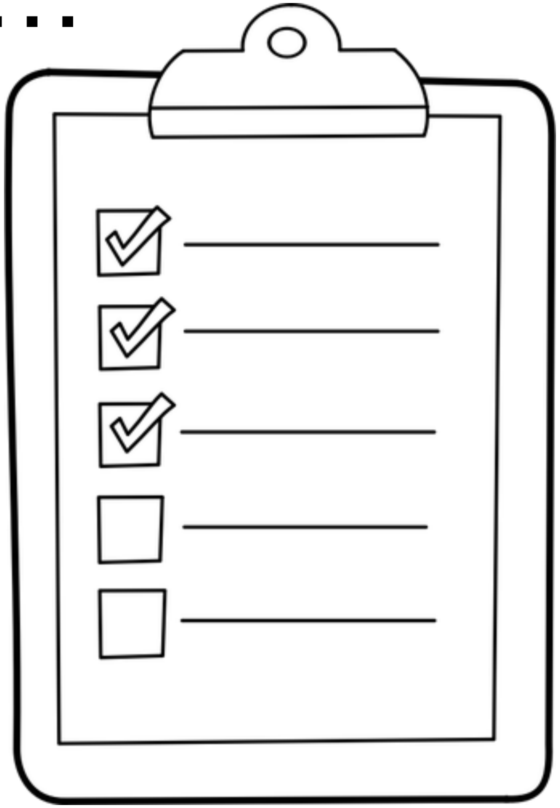
MAINE AGRICULTURAL AND FOREST EXPERIMENT STATION

Overview

1. Climate change risk in the context of farm financial planning
2. Traditional financial risk management versus adaptation/transformation
3. Identifying loss thresholds
4. Understanding cash versus capital resource pools

To evaluate and assess risk…

- Identify type of risk
- Assess intensity, frequency
- Assess potential impact or consequence (your *exposure*, your *vulnerability*)



Activity: Climate Risk Exposure

Identify a potential climate risk facing your farm (or a farm you work with) that you want to plan for. Based on this risk, imagine a specific event that could occur on your farm. We will come back to this same risk/event for multiple activities. Your specific situation and risk will determine if you will have **revenue loss** and/or **property loss**.

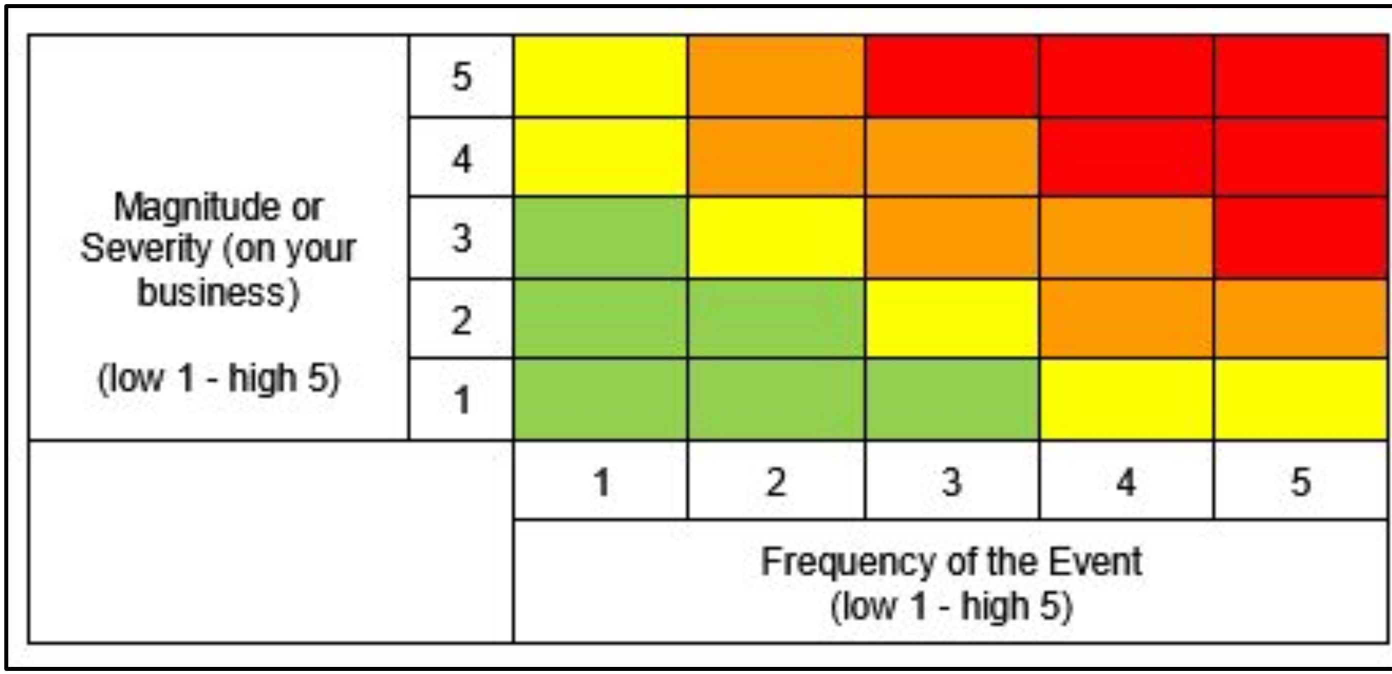
CLIMATE RISK:	

EVENT / SITUATION DESCRIPTION
What will occur physically (soils, fields, buildings, workers, herd, etc…)?
Where specifically will it happen, or where will the impacts be experienced?
When will it occur and how long might it last?

Potential impacts to farm finances

- Impact to key services needed on the farm
- Impact to inputs
- Impact on farm operations
- Impact to property
- Impact to marketing and distribution

Tools to help assess risk



Scenario - Rainy Month: Several intense and excessive rainfall events occur during one month this summer. A series of high rainfall totals have the potential to cause any of the following: washouts on roads/paths, flashy creeks/ditches/streams (potentially over the banks), 1-2 days of standing water in low-lying areas.

Approaches for managing risk fall in one of several categories:

Mitigate / Moderate

Share / Transfer

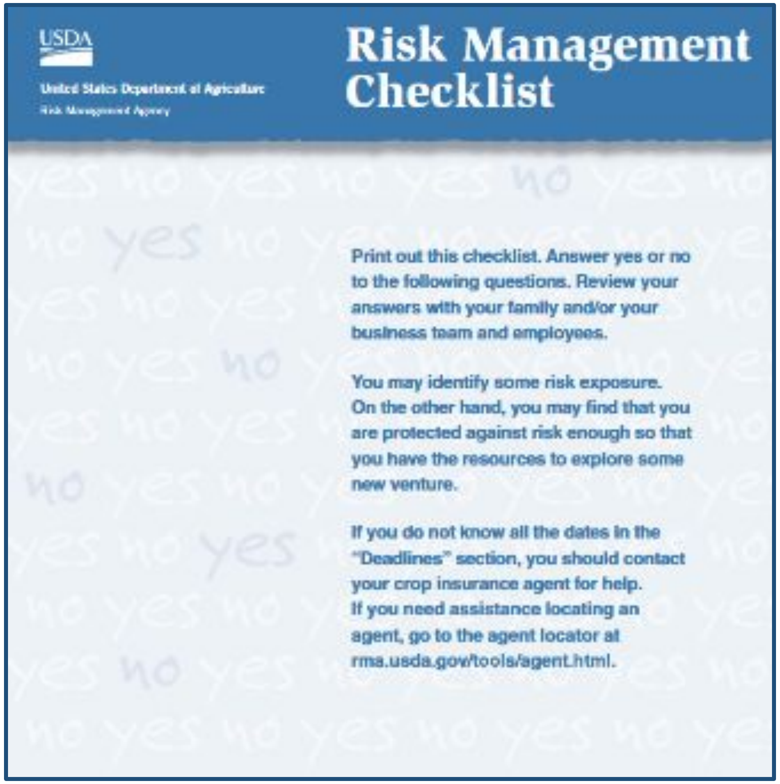
Avoid

RECOVER

Traditional risk management focuses on mitigation/moderation of risk OR sharing risk

- ❖ Property insurances, personal liability
- ❖ Crop or revenue insurance, baseline FSA disaster coverage
- ❖ Legal agreements

*** Communication with parties <u>before a climate related loss event</u> is key



USDA
United States Department of Agriculture
Risk Management Agency

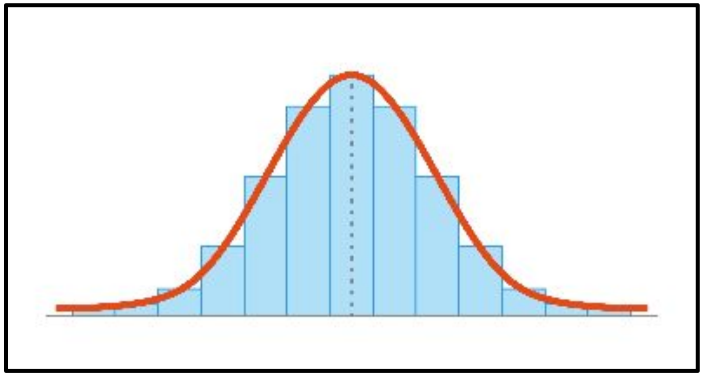
Risk Management Checklist

Print out this checklist. Answer yes or no to the following questions. Review your answers with your family and/or your business team and employees.

You may identify some risk exposure. On the other hand, you may find that you are protected against risk enough so that you have the resources to explore some new venture.

If you do not know all the dates in the "Deadlines" section, you should contact your crop insurance agent for help. If you need assistance locating an agent, go to the agent locator at rma.usda.gov/tools/agent.html.

Risk management versus resilience



Risk management theory is based on having good data and being able to predict the probability of risk.

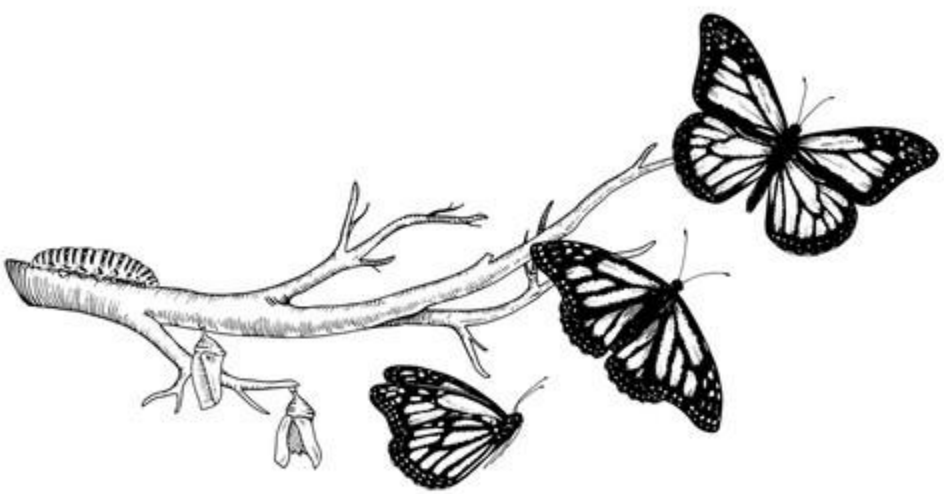
Resilience theory accepts risks, accepts unpredictable disruption and adds new layers of planning.

Resilience supports business continuity

Assumption: Disruption will occur and it cannot be predicted well. Recovery from disruptions requires RESOURCES and RELATIONSHIPS.

But, what happens if a farm is unlikely to recover well?

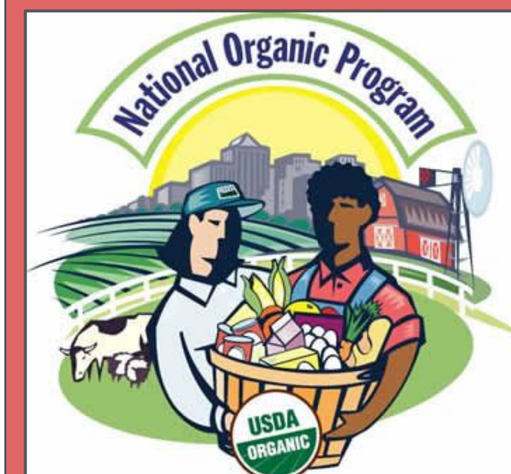
It's time to consider adaptation or transformation.



Making changes on the farm to address risk

Absorb $

Adapt $$



Transform $$$

Adapted from Béné (2014)

Ways to Spread Risk – Adapt Production

- Changing species
- Changing timing
- Changing locations
- Changing technology
- Redundancy and backup

Ways to Spread Risk – Adapt Marketing

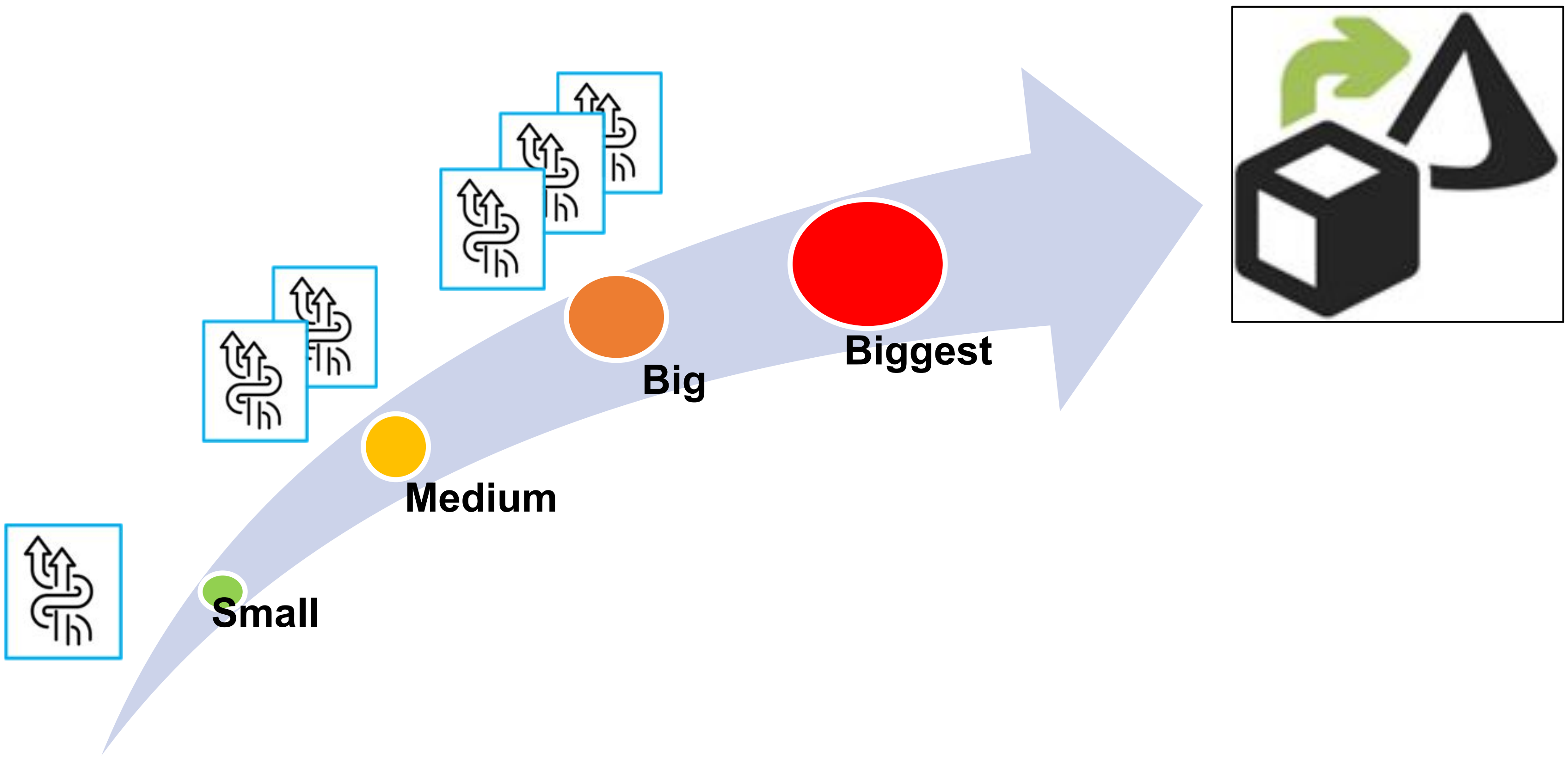
Change terms or tech

Change inventory approach

Change how you take orders

Change markets / develop back ups

Whether to ADAPT or TRANSFORM depends on the intensity and frequency of risk



What we are all here for: Financial principles and tools that help us address financial risk *and* make informed decisions about <u>adaptation</u> versus <u>transformation</u>

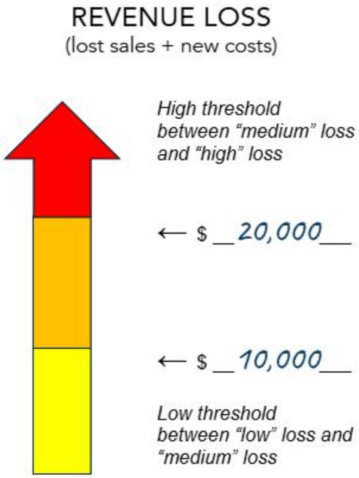
1. **Write a plan:** Having a written plan can lead to better financial performance! (Mishra et al. 2009)
2. **Use financial statements and tools to understand the business:** Balance sheets, profit and loss statements, enterprise budgets, partial budgets, projections, break even analysis, sensitivity analysis.
3. **Know the differences between cash flow and capital budgeting:** Know your reference points (we'll get to this).

Cash flow thresholds

THRESHOLD: The magnitude or level that must be exceeded for a certain reaction or result to be experienced.

When identifying cash flow thresholds, farmer must consider:

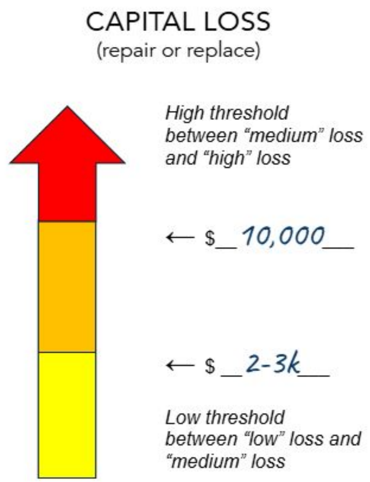
- Amount of loss or income ($$) ~ can be fixed amount (e.g., $10K) or relative (5% of gross)
- Timing of loss or income



1. What are your **reference points** for Revenue Loss? In other words, how do you know when you've crossed a threshold?

Gross about $100k per year, 20% feels like a lot. *It's also what I am hoping to pay myself, cuts into my own cash draw*

Capital thresholds



When identifying capital thresholds, farmer must consider:

- Access to credit
- Debt tolerance
- Other capital needs (e.g., deferred repairs or replacements)

2. What are your **reference points** for Capital Loss or Damage?

This is tough, we are a low overhead business, we don't have tons of stuff. Feels like cash flow is more of an issue compared to the items that could be damaged

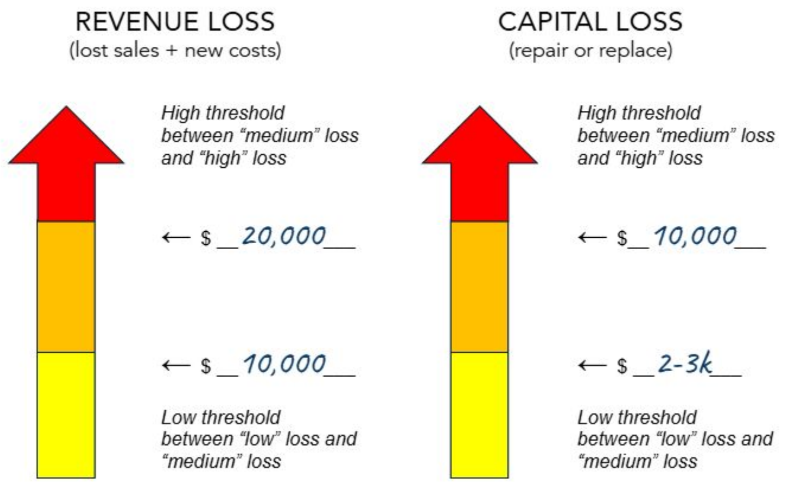
Some examples of capital thresholds:

- Credit card limits
- Repayment capacity
- Debt to asset ratio (solvency)
- Personal timeline (exit or transition)
- Value of capital investment
- Lots more…

Use these thresholds when deciding WHEN to adapt or transform

<u>Revenue loss</u>: the sum of lost sales + new costs. What are the $ cutoffs for your business that would define a high, medium, and low loss?

<u>Capital loss</u>: sometimes referred to as replacement costs, these are the $ associated with replacing or repairing equipment, infrastructure, or land resources. What are the $ cutoffs for your business that would define a high, medium, and low loss?



1. What are your **reference points** for <u>Revenue Loss</u>? In other words, how do you know when you've crossed a threshold?

Gross about $100k per year, 20% feels like a lot. It's also what I am hoping to pay myself, cuts into my own cash draw

2. What are your **reference points** for <u>Capital Loss or Damage</u>?

This is tough, we are a low overhead business, we don't have tons of stuff. Feels like cash flow is more of an issue compared to the items that could be damaged

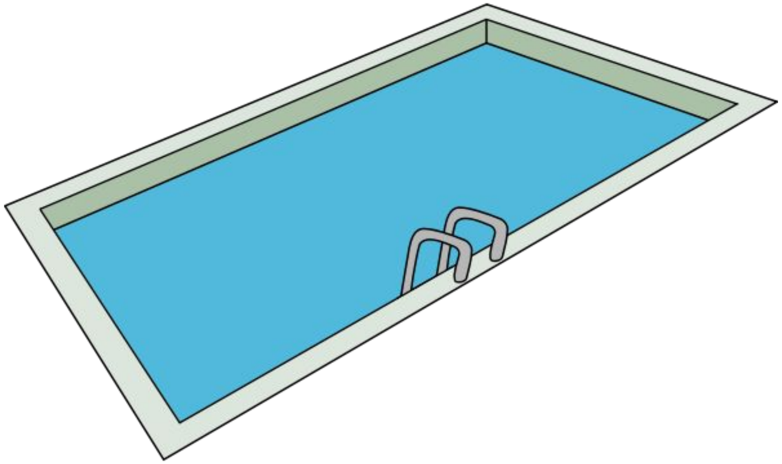
Adapting and transforming requires both **cash** and **capital resources**

Cash resource pools include:

- Cash on hand
- Credit cards (watch rates!)
- Your ability to liquidate inventory
- Cost management, ability to reduce expenses

To add to (or refill) the pool, consider:

- Anticipated sales
- Gifts, donations, volunteers
- Off farm income



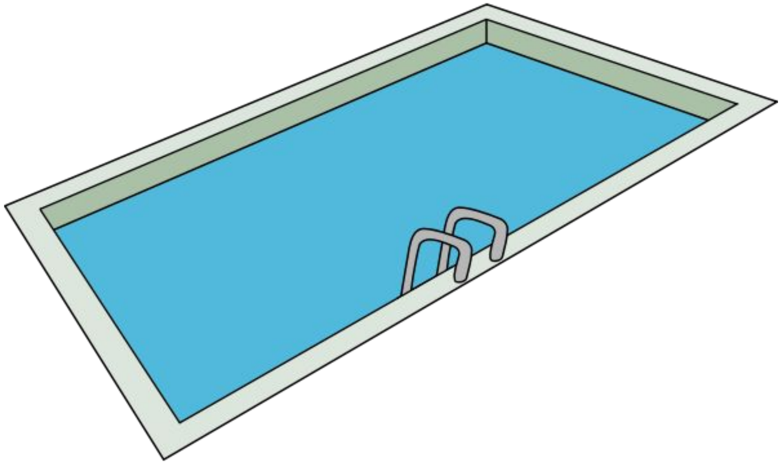
Adapting and transforming requires both **cash** and **capital resources**

Capital resource pools include:

- Reserve funds
- Pre-approved lines of credit
- Friends, family
- Insurance policies

To add to (or refill) the pool, consider:

- Borrowing readiness
- Equity investors (partners, easements, investors)
- Public funds
- Community investments



Capital budgeting is a long game

It requires that you determine that the benefits received over the lifetime of an investment will exceed cost to acquire and maintain it over its useful life.

Information you need to do this analysis:

- Start-up & installation costs of the strategy
- Depreciation and salvage value of any associated investments
- Business revenue and expenses

You will most likely use the following 3 metrics:

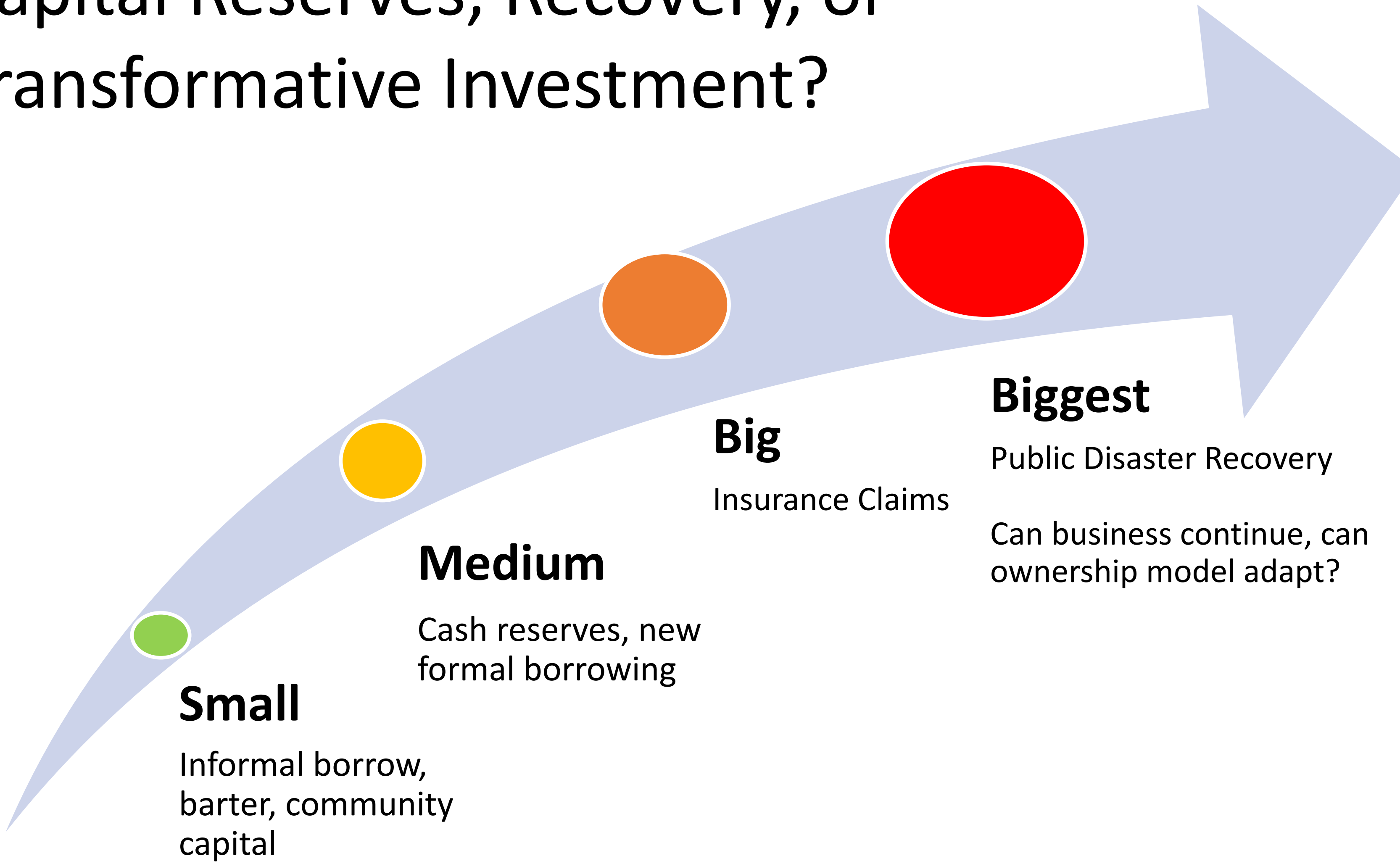
- Payback period (PB)
- Internal rate of return (IRR)
- Net present value (NPV)

PB = the length of time needed to recoup the original investment

IRR = Expected return on the project

NPV = the difference between the present value of cash inflows and outflows over time

Capital Reserves, Recovery, or Transformative Investment?



Taking stock of resources pools

Source	Cash or Capital? (circle one)	Amount	Already set-up? Yes or No (circle one)	Positioning Steps
Cost savings or credit cards	Cash - or - Capital	$2-3k	Yes - or- No	Prepare to borrow!
Crop pivot, short season crop	Cash - or - Capital	$5-10k	Yes - or- No	Need to have markets lined up
Find off-farm work	Cash - or - Capital	over $15k	Yes - or- No	Need to think about when and how much
Debt, loan	Cash - or - Capital	$20k	Yes - or- No	Need a plan for greenhouse, need to understand payment options and amount
	Cash - or - Capital		Yes - or- No	

Summary

1. Losses related to climate change are going to happen, but when they will happen - and how severe they will be for any given farm - is impossible to predict.
2. Farms must use all financial risk reduction tools available. These include traditional tools (e.g., insurance, diversified income streams), and also adaptive/transformative approaches.
3. Strategic decisions should be informed by each farms individual loss thresholds.
4. There are traditional and nontraditional ways to refill both cash and capital resource pools, allowing farmers to consider a wide range of adaptive/transformative options.

THE UNIVERSITY OF MAINE

Thank you!

Rachel Schattman
University of Maine
207-581-2913
rachel.schattman@maine.edu
https://agroecolab.com/

The Agroecology Lab