


Marianas Grazing and Livestock Management Academy
**Range and Pasture Management 101:
Grazing Management Planning**

Mark S. Thorne, Ph.D.
University of Hawai'i at Manoa - Cooperative Extension Service
College of Tropical Agriculture and Human Resources

Funding Provided by:
USDA-National Institute of Food and Agriculture; Outreach and Assistance for Socially Disadvantaged Farmers and Ranchers – Grant # 2009-51200-19601

 **College of Tropical Agriculture and Human Resources**
University of Hawai'i at Mānoa

Outline:

- Introduction –
 - Definitions
 - Adaptive Management Process diagram
- Adaptive Management Process
 - Setting Goals and Objectives
 - Identifying and Setting Management Priorities
 - Identifying Appropriate Methods
 - Development and Implementation of Management Plan
 - Monitoring Results
 - Evaluation and Modification of Goals, Priorities, and Methods, and Improvement of Management Plan
- Using the Adaptive Management Process to Develop a Grazing Management Plan
 - Setting Goals and Objectives for Grazing Operation
 - Resource Inventory
 - Operations and Management Program Assessment
 - Establish goals and Objectives for Operation
 - Identifying and Setting Management Priorities
 - Identify appropriate Management Methods or Practices
 - Development and Implementation of Management Plan
 - Monitoring Results
 - Evaluation and Modification of Goals, Priorities, and Methods, and Improvement of Management Plan
 - The Grazing Management Planning Environment
 - Summary

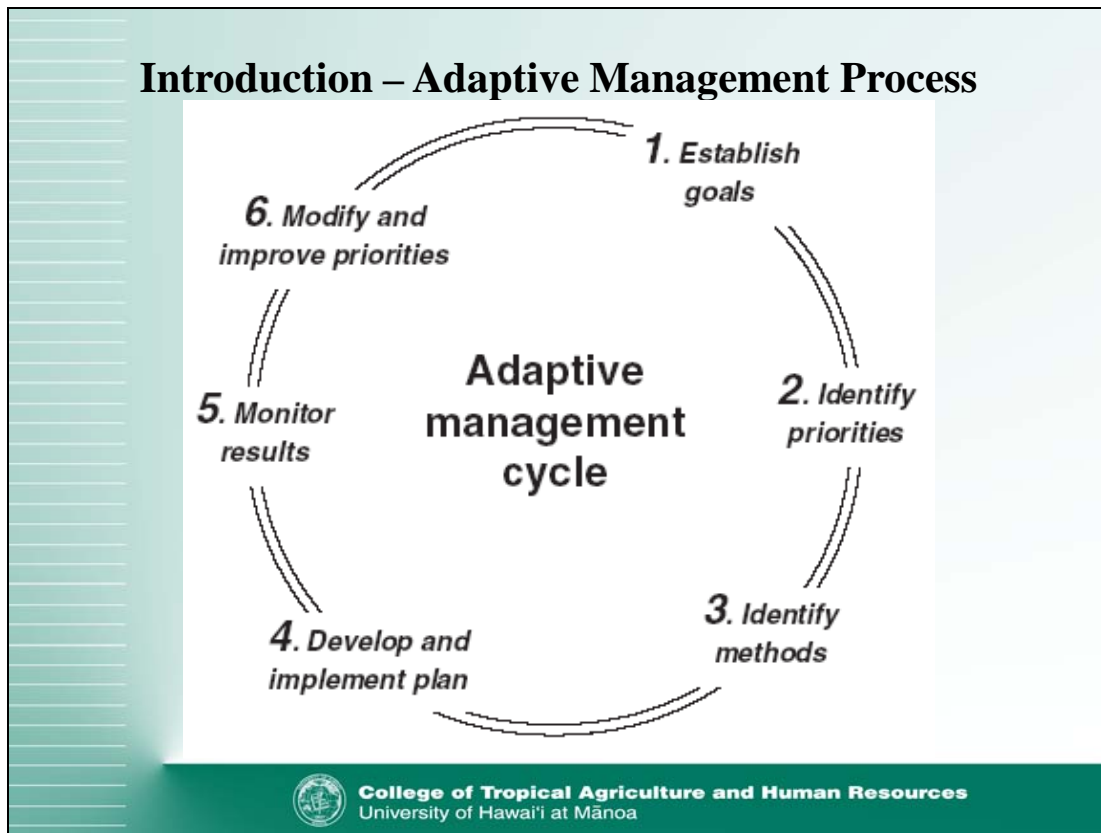
Introduction – Terms & Definitions

Adaptive Management – A cycle of management steps or events that facilitates planning, implementation of actions, monitoring of outcomes, and making adjustments to changing situations.

Grazing Management Plan – A document which details operation actions based on the manager’s goals, objectives, and priorities.

 **College of Tropical Agriculture and Human Resources**
University of Hawai'i at Mānoa

- Introduction –
 - Definitions
 - Adaptive Management – A cycle of management steps or events that facilitates planning, implementation of actions, monitoring of outcomes, and making adjustments to changing situations.
 - Grazing Management Plan – A document which details operation actions based on the manager’s goals and objectives.



- **Adaptive Management Process Diagram**

- 1) Setting Goals and Objectives

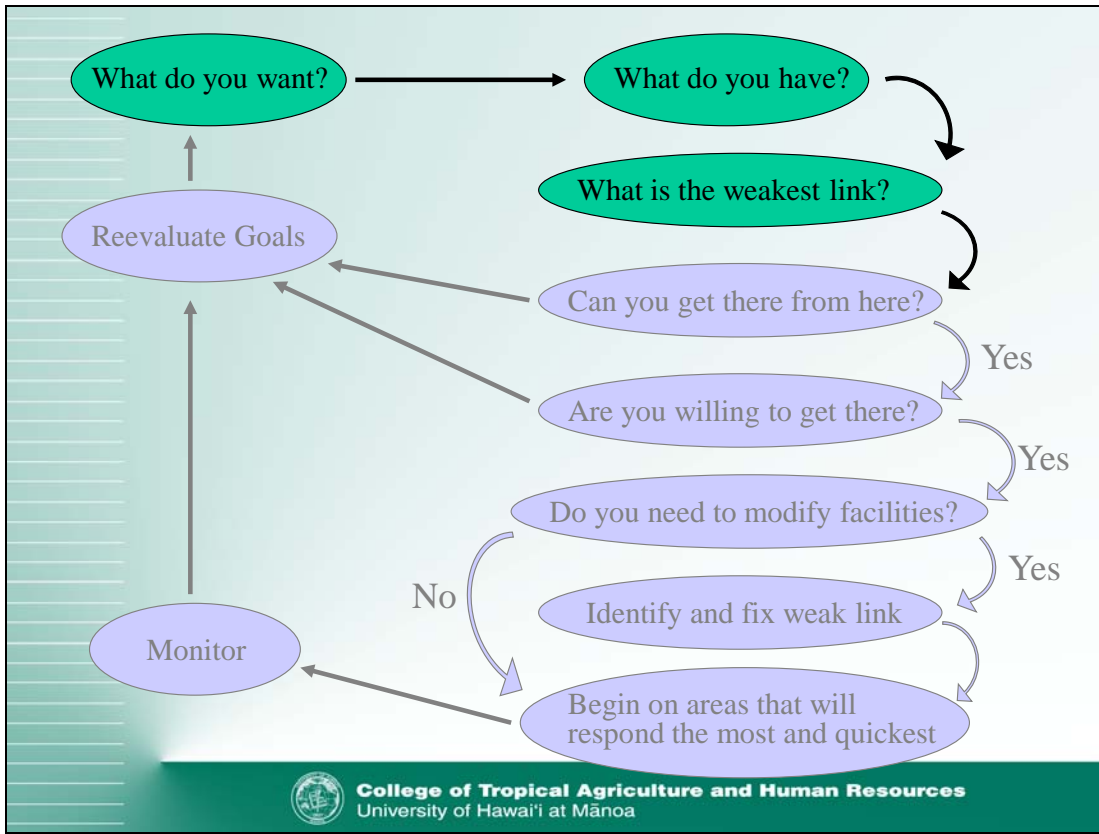
- 2) Identifying and Setting Management Priorities

- 3) Identifying Appropriate Methods

- 4) Development and Implementation of Management Plan

- 5) Monitoring Results

- 6) Evaluation and Modification of Goals, Priorities, and Methods, and Improvement of Management Plan



Grazing Management Plan Decision Flow Chart

- What do you want? (Establish Goals)
 - Landscape
 - Production
 - Quality of Life
- 2) What do you have? (Resource Inventory)
 - Ecosystem processes and vegetation
 - Livestock (kind, class, etc.)
 - Labor
 - Finances
 - Facilities
- 3) What is the weakest link in above? (Identify Priorities)

Setting Goals and Objectives for a Grazing Operation

- Consider long-term, cumulative, and large-scale effects of management actions.
- SMART goals are Specific, Measurable, Attainable, Related, and Trackable.
- Take into account the cost and practicality of measuring each action.



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

- **Setting Goals and Objectives for Grazing Operation (1 of 4)**
 - Consider long-term, cumulative, and large-scale effects of management actions.
 - Goals and objectives need to be SMART—S (specific), M (measurable), A (attainable), R (related) and T (trackable). SMART goals establish priorities for allocating limited resources from an ecological, economic and sociopolitical perspective. (TAMU)
 - Take into account the cost and practicality of measuring each action.

Setting Goals and Objectives for a Grazing Operation (cont'd)

Resource Inventory

- Land Resources
- Climate
- Range Sites
- Grazing Units
- Developments and Improvements
- Livestock Inventory



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

Goals and Objectives (2 of 4)

c) Resource Inventory – need to determine what you have before you can plan how to use it.

- 1) Land Resources - forage production and quality, water availability
- 2) Climate - seasonal weather patterns (temp. and precip.)
- 3) Range Sites - soil types and productivity potential, topography
- 4) Grazing Units - existing size and number of paddocks
- 5) Developments and Improvements - water troughs, existing fencing and gates, fertilization program
- 6) Livestock Inventory - kind, number, and class of livestock, how do your current livestock needs/preferences match above characteristics?

Setting Goals and Objectives for a Grazing Operation (cont'd)

Operations & Mgmt Program Assessment

- Forage costs (per AUM)
- Seasonal distribution and movement of livestock
- Supplementation program
- Additional enterprise opps./demands
- Livestock handling practices:
 - Breeding
 - Calving/lambing
 - Weaning
 - Branding/castration/etc.
 - Disease and parasites
 - Marketing



Goals and Objectives (3 of 4)

- d) Operations and Management Program Assessment
 - 1) Forage Costs (per AUM)
 - 2) Seasonal distribution and movement of livestock
 - 3) Supplementation program
 - 4) Additional ranch enterprise opportunities/demands
 - 5) Livestock handling practices
 - i) Breeding
 - ii) calving/lambing
 - iii) Branding/castration/etc.
 - iv) weaning
 - v) Disease and parasite control
 - vi) Marketing

Setting Goals and Objectives for a Grazing Operation (cont'd)

Establish Goals and Objectives:



Range and Pasture
Management



Operational



Livestock
Management

 **College of Tropical Agriculture and Human Resources**
University of Hawai'i at Mānoa

Goals and Objectives (4 of 4)

- e) Establish goals and Objectives for Operation
 - 1) Range and Pasture Management Objectives
 - 2) Livestock Management Objectives
 - 3) Operational Objectives

Identifying and Setting Management Priorities

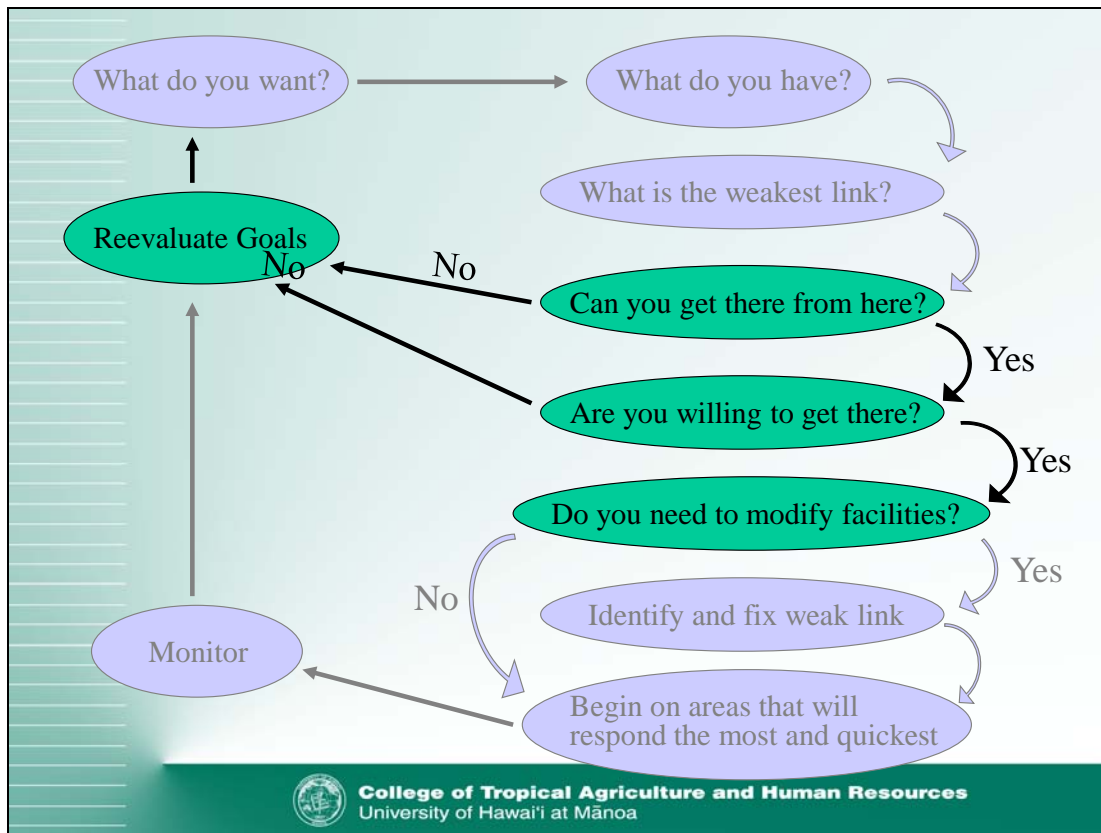
- Improve pasture condition
- Ranch profitability
- Maintain lifestyle
- Herd genetics
- Sustainability
- Others?



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

B. Identifying and Setting Management Priorities

- a) Ranch profitability, herd genetics, improve pasture condition, sustainability, maintain lifestyle, etc



Grazing Management Plan Decision Flow Chart

4) Can you get there from here? (Identify Methods or Practices)

- Climate
- Soils
- Topography
- Economics

5) Are you willing to do the things necessary to get you there? (Establish/Reevaluate Goals)

6) Do you need to modify facilities? Identify the weakest link and fix it. (Identify Methods/Develop and Implement Plan)

Identify Appropriate Management Methods or Practices



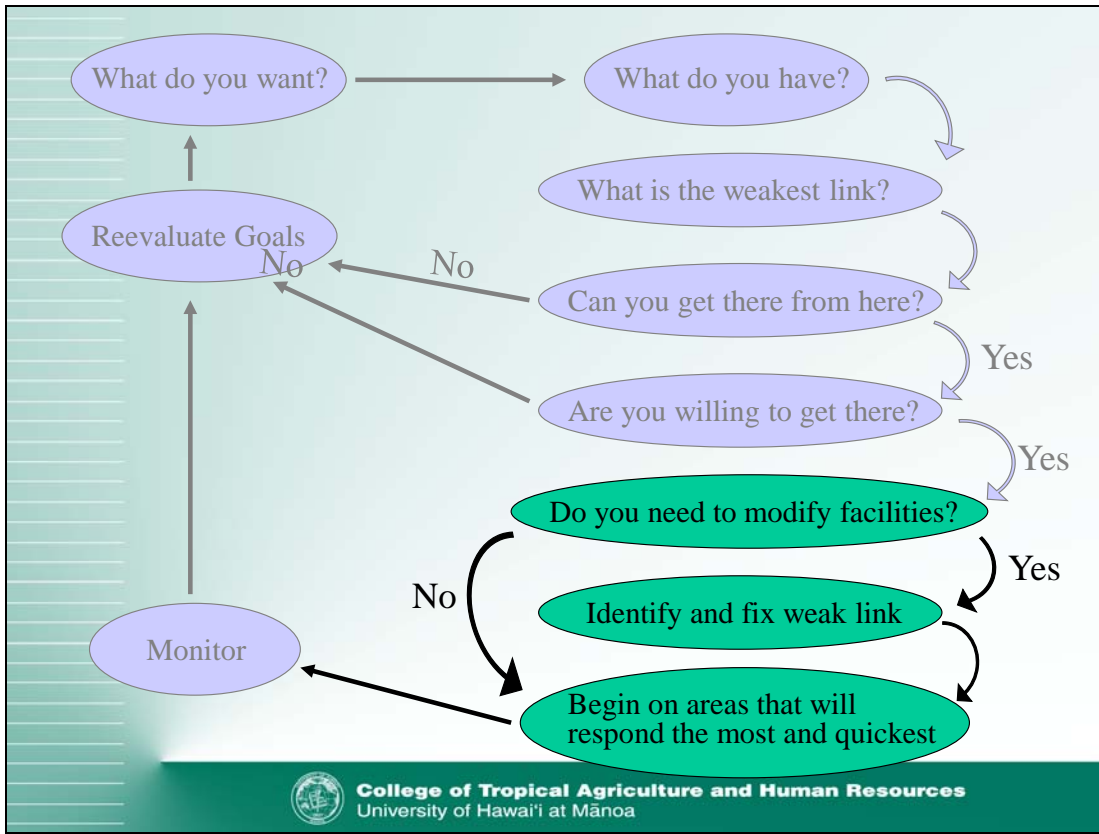
- Methods or practices used depends on the goal and objectives of each activity
- More time, energy, and money should be devoted to high management priorities
- Expected outcomes and/or benefits should be listed for each practice or method selected



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

C. Identify appropriate Management Methods or Practices

- The methods and practices used will depend on the goal and objectives for each activity (grazing, livestock, other ranch operations) and the priority given them.
- More time, energy and money should be devoted to high management priorities than low management priorities
- For each management practice or method selected expected outcomes and/or benefits should be listed (i.e. if High Intensity – Low Frequency grazing program will be adopted what is the expected benefit of the program)



Grazing Management Plan Decision Flow Chart

- 6) Do you need to modify facilities? Identify the weakest link and fix it. (Develop and Implement Plan)
- 7) Begin on areas that will respond the most and quickest. (Develop and Implement Plan)

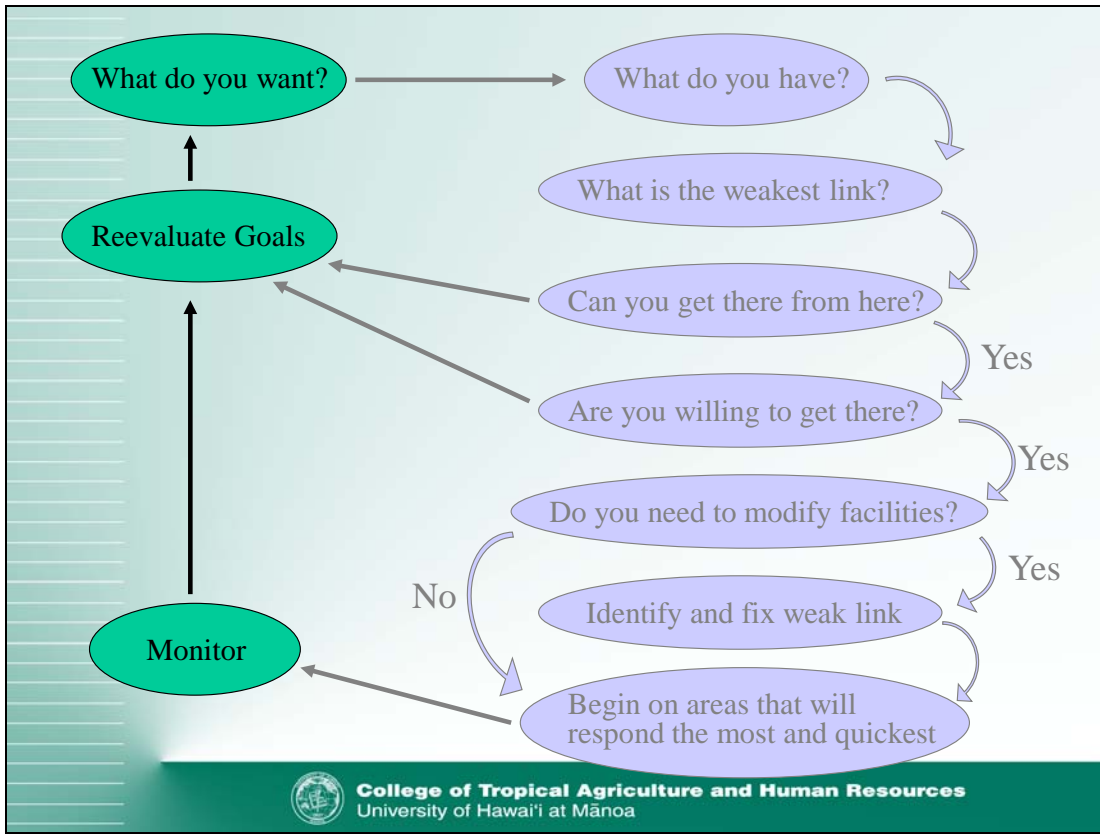
Develop and Implement Management Plan

- Compile resource inventories, goals, objectives, priorities, practices, outcomes/benefits into a guiding document
- Some already ongoing management activities may not be time constrained, but other new practices or changes may require a “start” date



D. Development and Implementation of Management Plan

- Resource inventories, Management goals, objectives, and priorities, and the chosen management practices and outcomes/benefits compiled into a document that will serve as a guide during implementation.
- Management activities may already be ongoing as a plan is developed so implementation may not necessarily be time constrained. On the other hand, if the plan makes changes to the current management practices, implementation may require a “start” date.



Grazing Management Plan Decision Flow Chart

- 8) Monitor (is it working?)
- 9) Reevaluate Goals (Modify and Improve Priorities)
- 10) Is this really what you want (start over)?

Monitoring Results

- Monitoring: Are we along our expected or intended path?
- Essential questions for monitoring: why, what, when, where, and how?
- *What* do you want to know about *which* management activities?



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

E. Monitoring Results

- After implementation of a Management Plan, monitoring is a crucial activity. Only by monitoring the outcomes of our management activities can we know if our decisions are taking us along our expected path.
- Essential questions for monitoring: Why, what, when, where, and how?
- The answer to why, what, when, where and the how of monitoring depends on what you want to know about which management/operational activities are involved. Monitoring of range condition, for example, differs from monitoring of livestock market decisions and thus requires different techniques and observational skills.

Evaluation, Modification, & Improvement of the Management Plan

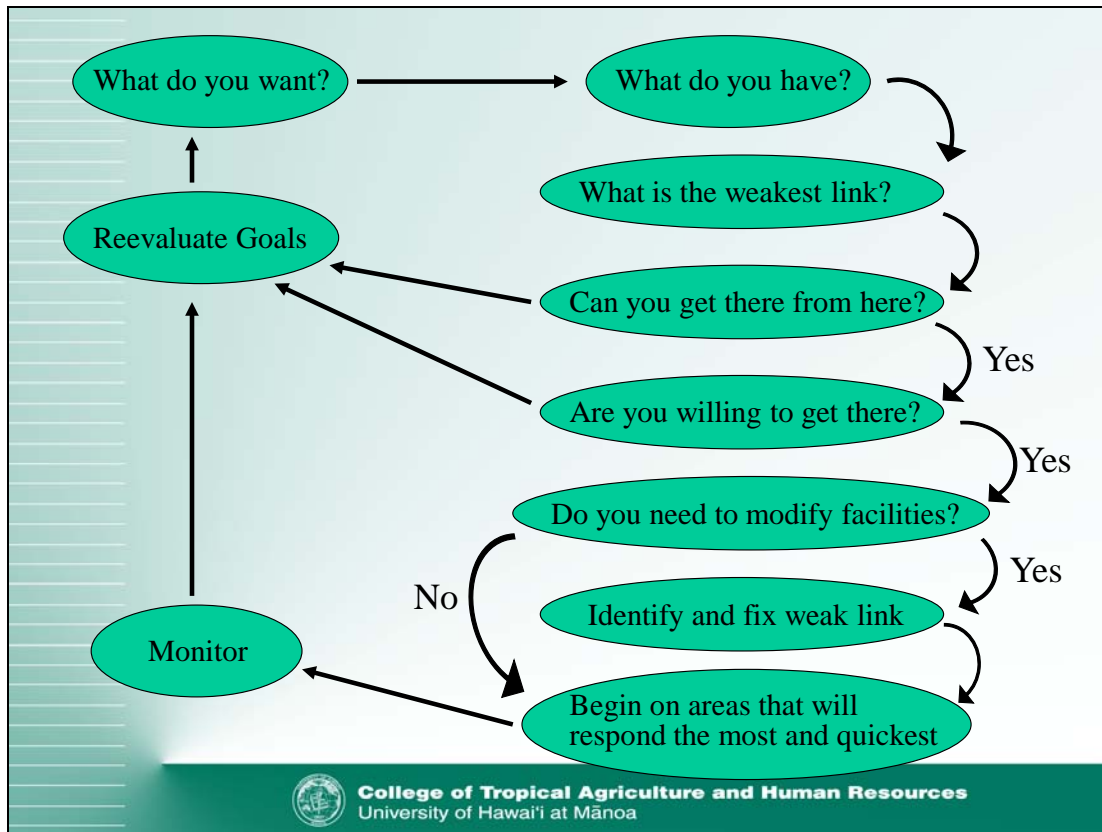
- What does your monitoring program tell you?
- What is working, what does not work?
- What changes can be made?
- The purpose is to always make improvements to the Management Plan



College of Tropical Agriculture and Human Resources
University of Hawai'i at Mānoa

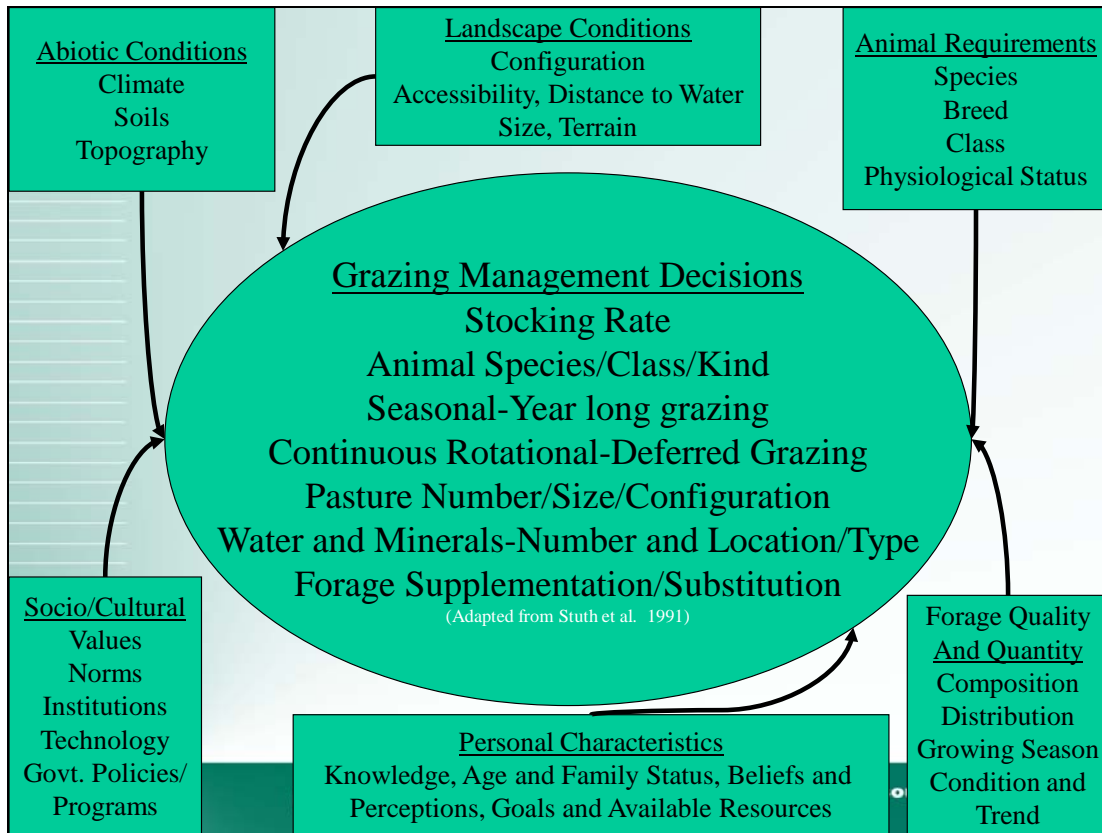
F. Evaluation and Modification of Goals, Priorities, and Methods, and Improvement of Mgmt Plan

- Depending on what your monitoring program indicates, Managers should be willing to evaluate and make modifications to their management plans; goals and priorities may change, a method or practice may have not been appropriate, or did not work, etc. The purpose is to always make improvements to the Plan.



Grazing Management Plan Decision Flow Chart

- What do you want? (Establish Goals)
 - Landscape
 - Production
 - Quality of Life
- 2) What do you have? (Resource Inventory)
 - Ecosystem processes and vegetation
 - Livestock (kind, class, etc.)
 - Labor
 - Finances
 - Facilities
- 3) What is the weakest link? (Identify Priorities)
- 4) Can you get there from here? (Identify Methods or Practices)
 - Climate
 - Soils
 - Topography
 - Economics
- 5) Are you willing to do the things necessary to get you there? (Establish/Reevaluate Goals)
- 6) Do you need to modify facilities? Identify the weakest link and fix it. (Develop and Implement Plan)
- 7) Begin on areas that will respond the most and quickest. (Develop and Implement Plan)
- 8) Monitor (is it working?)
- 9) Reevaluate Goals (Modify and Improve Priorities)
- 10) Is this really what you want (start over)?



The grazing management environment

Summary

Grazing management planning is a formal process that ranchers use to establish operational goals and objectives, establish management priorities, and prescribe specific management actions.

The grazing plan is laid out in a formal document that is used to guide and direct annual activities.

The development of a grazing management plan should be done utilizing the 6 principles defined as the Adaptive Management Process

As the adaptive management process indicates, the management plan should be evaluated and modified on at least an annual basis, or as needed.

The grazing management planning process is influenced and guided by ecological, economic, and social constraints that need to be considered for success.

