

- 1 **Universal Design on the Farm:
Planning for Safety, Efficiency, and Independence**
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- 2 **Maine AgrAbility
Farming for a lifetime**
 - Our mission is to support farmers, fishermen and women, and forest workers who experience barriers to employment due to aging, injury, or chronic illness. In this way, we support Maine's rural culture and economy.
 - Programs include
 - LogAbility and FishAbility
- 3 **Free Services**
 - On farm assessments
 - Education and training
 - Support and advocacy
 - Community connections
 - Safety planning
 - Equipment modifications
 - Financial planning
- 4 **Partners**
 - The University of Maine Cooperative Extension
 - Agricultural expertise
 - Alpha One Independent Living Center
 - Occupational therapists, independent living skills
 - Goodwill of Northern New England
 - Employment specialists
- 5 **Learning Objectives**
 1. What are the principles of Universal Design and how can they be applied to the farm environment?
 2. What are three design ideas that you can incorporate into your own home?
- 6 **What is Universal Design?**
 - Universal design is an approach to the way we live and work.
 - Its goal is to design tools, consumer products, homes and worksites that can be used by the widest range of people, regardless of age and ability.
 - Why is it important?
 - Disability is not a special condition of a few
 - It is ordinary and affects most of us for some part of our lives
 - If a design works well for people with disabilities, it works better for everyone.
- 7 **Universal Design - 2**

Bad design disables

Good design enables

8 **Goals of Universal Design on the Farm**

- Keep everyone safe: children, workers, visitors
- Streamline work, increase efficiency
- Reduce wear and tear on the body
- Create an environment where aging adults can live and work comfortably

9 **Situations encountered**

- Farms are often multigenerational
- A farm can be home to several generations at once. Family members have different needs at different stages of their lives, while still wanting a productive role on the farm.
- It's important to keep everyone safe, no matter what the age.

10 **Farms often welcome visitors**

- Many enterprises bring customers to the farm: an on-farm store, pick-your-own operation, field days, and other agritourism events.

11 **When people visit, how can farmers ensure their safety?**

- Can they read farm signage?
- Do they have any mobility issues?
- Are they hard of hearing?
- Are there visual impairments?
- Will there be appropriate parental supervision?

12 **Challenges of the farm environment
Indoors . . . from barn to kitchen**

13 **Challenges of the farm environment: Outdoors...**

- Working in hot weather
- Working with large animals and machinery

14 **Challenges of the farm environment:
Cold, snow, uneven terrain . . .**

15 **Working in awkward positions**

- Repetitive tasks strain muscles and joints

16 **Arthritis affects one-third of all farmers**

- causing pain and reducing strength.

17 **Farm work...**

- Think of the work farmers do: forceful gripping, pushing, lifting, bending, kneeling, squatting

18 **Woodlots**

- Farmers often have woodlots. More noisy, dangerous machinery and compromised working positions.

- 19 **Applying Universal Design principles in existing environments**
- How can we address these challenges with Universal Design?
- 20 **Universal Design principles...**
- ...can be applied to tools and environments, indoors and outdoors, wherever people live, play, and work. These principles are:
 - Equitable use
 - Flexibility in use
 - Simple and intuitive use
 - Perceptible information
 - Tolerance for error
 - Low physical effort
 - Size and space for approach and use
- 21 **Signage**
- Perceptible Information
- 22 **Paths for access**
- Equitable Use
- 23 **Sloped walkways**
- Enable everyone to take same route—walking, wheelchairs, wagons/carts, etc.
 - Flexibility in Use
- 24 **Entryways**
- Wide doors for access
 - No stairs if possible
 - Ramps for thresholds
 - Levers instead of knobs
 - Low Physical Effort
- 25 **In the Kitchen**
- Tolerance for error
- 26 **In the Kitchen - 2**
- Pull-out drawers
 - Tapered fatigue mats
- 27 **In the Kitchen - 3**
- Multi-level work surfaces accommodate all heights and ages.
 - Equitable and flexible use
 - Size and space for approach and use.
- 28 **Workspaces where you can sit or stand conserve energy**
- 1 • In the barn
 -
 - 2 • In the kitchen

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- 29 **Stairs**
- Best to eliminate stairs entirely (equitable use)
 - If that's not possible. . .
 - Use colored treads for vision impairment
 - Perceptible information
 - Have good lighting that's motion sensitive or place a light switch at top and bottom.
 - Remove all clutter
 - Walk mindfully
 - Place handrails on both sides
 - Tolerance for error
- 30 **Hallmarks of Universal Design**
- Efficiency, organization, simplification
 - Organize your tools where they can be easily reached.
- 31 **Know where to find your tools**
- Hooks keep them organized, saves you time
 - Flexibility in use, low physical effort
- 32 **Color Coding**
- Use visual cues to minimize mistakes.
This helps with vision impairment, works well for children
 - Simple and intuitive use. Perceptible information.
- 33 **Working Smarter**
- Applying UD principles to adaptive equipment
 - Ergonomic tools are designed to accomplish tasks with less wear and tear on the body.
- 34 **Tools**
- Ratchet pruners: Use less force, one handed use
 - Telescoping tools: extend reach, reduce bending/reaching
 - Ergonomic garden tools: put wrist in neutral position
- 35 **Simplify your work**
- Gather tools together before beginning a project
List chores and notes on a white board.
- 36 **Planning infrastructure**
- To incorporate Universal Design principles
 - Think through design before you build:
 - How much space is needed? What kind of storage?
 - How much lifting will be necessary?
 - Can product come in/go out easily?
 - How many people will be using the space at one time?
- 37 **What Universal Design principles do you see at work?**

- Equitable use
- Flexibility in use
- Simple and intuitive use
- Perceptible information
- Tolerance for error
- Low physical effort
- Size and space for approach and use

38 **Handling Livestock**

- Goal: to control livestock, keep animals calm, make handling safer

39 **Gates to manage livestock**

- Bump 'n Go gates
- Suspended wheel on gate

40 **Latches for stalls**

- Two types of latches are shown here:
 - The red latch closes automatically, secure and heavy duty
 - The green latch paired with the chain allows the door to be secured from either side

41 **Better body mechanics: decrease repetition**

- Parlor milking vs. stanchion milking

42 **Seating**

- A cushioned tractor seat with good suspension protects the back and hips from long days of constant vibration. A swivel mount prevents twisting from the hips.

43 **Additional Steps**

- Adding an additional step reduces stress on the knees and prevents overuse of the shoulders when hoisting the body up and into the tractor.

44 **Gearshift**

- A properly located gearshift minimizes reach

45 **Spinner Knob**

- A spinner knob eliminates stress on the fingers caused by gripping the steering wheel

46 **In conclusion:**

- Universal Design helps us rethink the idea of normalcy
- How do you get from point A to point B, a distance of one mile?
- Walk? Sprint? Drive a car?
Hitchhike? Ride a bicycle?
Wheelchair? Roller skates?
Skate board?
- Is one method more normal than another?

47 **The Reality**

- Most people will experience some form of disability, whether permanent or temporary, at some point in their lives.

- We can design products, homes, workplaces, and environments so they do not present barriers.
- Universal design helps to remove the stigma against people who are different—i.e. who are aging, who can't see, who don't look like us, who use a wheelchair, who have lost a limb, etc.
- It allows everyone to fully participate in life, work and play.

48 **Universal Design – Remember**

Bad design disables
Good design enables

49 **For more information about Maine AgrAbility**

- Our project coordinator is Lani Carlson. She can be reached at 207-944-1533.
- Our website is: umaine.edu/agrability/
- See current work and articles on Facebook
- We post great ideas in tools and Universal Design on Pinterest.

50 **Credits:**

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