

Worksheet 1: Comfort Assessment

Participant Information:

- Name: D
- Shovel Type (A, B, C, D, E, F, G, H, I, J, K, L, M, N):
- Forks Type (A, B, C, D, E, F, G, H, I, J, K, L):
- Task Description (e.g., lifting straw into a wheelbarrow):

Comfort Evaluation:

- ~~Green shovel~~ N long
- On a scale from 1 to 10, rate the overall comfort of using the shovel (1 being extremely uncomfortable, 10 being extremely comfortable).

- Rating: 8 A was ok, but too short comfortable

Were there any specific discomfort points while using the shovel or forks? Please describe.

I did not care for having a  handle grip if I was going to be rotating

- Did you experience any discomfort in your hands, wrists, arms, or body? If yes, please specify.

wrist (Right) when rotating with a handle
No discomfort with Rake

- Were there any features of the shovel that contributed to or alleviated discomfort? (e.g., grip design, curvature)

long - good leverage for me / height

- How would you suggest improving the comfort of this shovel for your body type or specific task?

more padding on the grip

Worksheet 2: Control Assessment

Control Evaluation:

- Rake H
- On a scale from 1 to 10, rate your perceived level of control while using the shovel or fork (1 being very little control, 10 being complete control).

- Rating: 4 shovel 7 Rake prefer the fork for this task for control

- Did you feel that the shovel allowed you to maintain control over the load (e.g., manure and straw mixture)? Please explain.

Not well - the scoop wasn't deep enough to hold without dropping. The fork had better control

- Were there any instances where you felt the shovel's design hindered your control over the task?

yes - handle too straight w/ shovel - couldn't keep the scoop level enough when lifting to hold the straw

4. Were there specific design features of the shovel that positively or negatively impacted your control (e.g., grip shape, length)?

preferred straight handle ~~with~~ without  grip

5. How would you recommend enhancing control when using this shovel for your body type or specific task?

Different angle of Sloop

Worksheet 3: Perceived Exertion Assessment

Perceived Exertion Evaluation:

1. On a scale from 1 to 10, rate your perceived level of physical exertion while using the shovel or forks (1 being very little exertion, 10 being extremely exerting).

• Rating: 4 Shovel 4 rake


2. Were there specific moments during the task when you felt exertion was higher or lower? Please describe these moments.

lifting a heavier load - near the top of the wheelbarrow exertion was higher

3. Did the shovel design affect your perceived exertion levels (positively or negatively)?

yes - the short handle meant more back work, the long handle was more in my arms

4. Were there any physical areas (e.g., back, arms, wrists) where you felt increased exertion or strain? Please specify.

back when leaning forward for short handles
wrist - when rotating with grip  handle

5. How do you think the design of the shovel or forks could be modified to reduce perceived exertion for your body type or specific task?

Not sure

Ensure that participants complete these worksheets after using each shovel or fork type for the designated tasks. This feedback will be valuable for the research in evaluating the ergonomic efficiency of the shovels and making recommendations for improvements.