

Worksheet 1: Comfort Assessment

Participant Information:

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

Comfort Evaluation:

- On a scale from 1 to 10, rate the overall comfort of using the shovel (1 being extremely uncomfortable, 10 being extremely comfortable).
 - Rating: 5
- Were there any specific discomfort points while using the shovel or forks? Please describe.
Shovel was heavier than I would like
- Did you experience any discomfort in your hands, wrists, arms, or body? If yes, please specify. Felt awkward on my wrist
- Were there any features of the shovel that contributed to or alleviated discomfort? (e.g., grip design, curvature)
- How would you suggest improving the comfort of this shovel for your body type or specific task?
I ended up liking shovel **B** because I could pick up more material with it, quicker, than the other shovels

Worksheet 2: Control Assessment

Control Evaluation:

- 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: ~~10~~ Fork = 10 Shovel = 5
- Did you feel that the shovel allowed you to maintain control over the load (e.g., manure and straw mixture)? Please explain.
FORK ⇒ Yes. Felt small & light enough for me to maintain control. Shovel ⇒ felt too heavy for me
- Were there any instances where you felt the shovel's design hindered your control over the task?
Shovel - yes - due to bulky size
Fork - no

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

Shovel - size of scoop was a positive

Fork - size of scoop area was too small

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

Shovel - add a side grip for handle

Fork - NO

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: _____ Shovel - 8
Fork - 2

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

Shovel - felt heavier than I prefer so = more exertion

Fork - no

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

Shovel - yes - size was negative

Fork - no - size was positive

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

Shovel - yes - handle felt I needed to bend over more

Fork - no

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?

Shovel - add hand grip

Fork - no

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.