

Upright Posture Shearing Platforms (UPSP's)

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Introduction

AWI is actively supporting the development of several UPSP's. Each has significantly different approaches to shearing, sheep delivery and exit, and wool flow; so it is not possible to describe in detail the dimensional layouts required for each platform, or multiple platforms, at this early stage of development. Notwithstanding, two models are expected to emerge.

1. Mobile single / multi stand trailers (supplied by contractors, local cooperatives, or purchase for use on large properties/enterprises); and,
2. Dedicated single stand UPSP's for woolgrowers with relatively small mobs – who are perhaps prepared to spread shearing over several months by doing the shearing themselves to minimise direct outgoing costs. Both models have to address the same issues of sheep delivery, sheep exit, and wool flow.

Some general guidelines are:

- Some UPSP's may be fitted into existing shearing sheds on a permanent or semi permanent basis. Catching pens would be replaced by “lead up ramps” and, in general, more room is required than existing “on the board” shearing;
- Mobile trailer based technologies may be set up in the open, preferably in close proximity to the existing shearing sheds (for sheep holding and bale storage); and
- It may be preferable and beneficial to place any of the above three technologies (mobile trailers, UPSP, Bioclip®) under cover in a new shed. In such cases, a clear span, high roofed, multi-purpose machinery shed type structure with hangar doors and a clean concrete floor would be ideal. Temporary races and a temporary wool room can be used during shearing.

The Process – at a glance

UPSP Process – at a glance

A typical trailer based shearing set up might include:

1. Holding yard – portable

2. Ramp
3. Trailer used to transport and contain the shearing process.
4. V belt loader/tipper
5. ShearEzy UPSP
6. Exit yard
7. Exit holding yard
8. Wool classing table
9. Bins and presses

The ShearEzy shearing process

1. Sheep are placed in the holding yard from the paddock or farm sheep yards
2. Sheep then move onto the ramp
3. From the ramp a sheep is then moved onto the loader. This is a V-belt device that has a sheep inverter that tips the sheep over on to its back. The sheep is then ready to be moved by the belt onto the shearing platform. As the sheep exits the loader another sheep moves onto the loader and is tipped in preparation for the completion of shearing.
4. The sheep is moved onto the platform. The V-belt of the loader and the shearing platform are synchronised and the sheep travels onto its back to have its rear legs attached to the mechanical restraints of the shearing platform.
5. Shearing
 - a. Shearing commences with the shearing of the crutch area followed by the belly. Alternatively, crutching may take place on the loader.
 - b. Once the belly wool is removed the sheep's front legs are attached to the front leg restraints which position the sheep in a more upright position to allow the neck to be opened up and shorn.
 - c. Following the shearing of the neck and the release of the front restraints the near side is shorn with the far side of table tilting away from the shearer. As the near side is tilted the leg restraints tilt away from the shearer.
 - d. On completion of the near side the near side of the far side is then shorn with the near side laying flat and the leg restraints tilting towards the shearer.
 - e. Upon completion of the far side the sheep is shorn and exits to the floor on the shearers left.
6. The sheep then moves to the exit yard and onto the holding yard.
7. Upon completion of shearing the two sides of the shearing platform then move apart dropping the fleece between them onto a conveyor belt. This belt then

moves the fleece away from the shearing platform to an area where it is picked up by the wool classer and is then prepared on the wool table. From the wool table the fleece is placed into the press or bin.

Area Requirements for UPSP's

Mobile UPSP's can vary from single stand units at the small end of the scale, to 3-6 stands on a self contained trailer, possibly with a second trailer containing wool handling equipment such as wool hoppers/bins and semi-automatic presses.

Three options exist for the installation UPSP's:

1. Permanently install one or more loaders and UPSP's into an existing wool shed. The space required will depend on the UPSP and loader, but the following is required:
 - Modify catching pens to directly feed the loader. This may require a ramp;
 - The most important requirement is a reasonably flat area adjacent to the shed for the setup of the mobile trailer(s). Ensure that your floor has sufficient load rating for the UPSP and loader Dimensions for mobile trailer configured UPSP's are in the order of 2.5 metres trailer width, and 3.5 metres of trailer length per platform. Clearance height is in the order of 4.0 metres; and
 - Ensure that an adequate UPSP 'let go' path exists and that the fleece can be easily be transferred to an existing wool handling area.
- 2) A variation of the above is that some UPSP's may be supplied on a temporary basis. In this case, you will need to ensure that the UPSP trailer matches the height of your loading dock, that the loading door is sufficiently large, and that there is a clear, flat and load bearing path to where the UPSP will be located; and
- 3) Many of the UPSP's will be owned and operated by contractors and are not removable from their trailer. This applies especially to the larger multi-stand configurations.

These trailers may or may not have their own roof, and may or may not include wool handling equipment such as bins and presses.

A multi purpose open plan shed with at least 5 meter height, several large hanger doors, a concrete floor and adequate power is ideal.

This allows one or more UPSP trailers to be partially or completely set up undercover (possibly side by side), feeding a temporary wool handling area via a fleece conveyor system. A roll up plastic matt or carpet may be useful to protect fleece quality. Temporary bins and a wool press can easily be set up in this area.

Temporary races can then be set up for sheep entry and exit paths, possibly linked to undercover storage of sheep in an existing and nearby wool shed.

The dimensions of a single platform off the trailer, or a fixed platform, are in the order of 3.0 metres in length, 1.5 metres in depth with another metre of depth for the shearer to operate in, and 2.8 metres in height.

The medium to large size configurations lend themselves to non-dedicated utility sheds where sheep can still be penned overnight. For the rest of the year, the shed can be used for equipment storage and other purposes.

It will be unlikely that existing motors in sheds will be suitable, and AWI recommends that anti-lock motors such as the Heiniger EVO drive are used with UPSP's. This is a safety consideration given the high numbers of lock-up injuries and shearers using the handpiece at waist height on UPSP's.

Power requirements are generally one single phase 10-15 amp power outlet per UPSP/loader.

Sheep Delivery & Exit

All of the UPSP's under development use some level of semi-automatic mechanical equipment to deliver the sheep to the shearer. They all require sheep to arrive in a "self-drawing" race that narrows to a single file at the loader. This is where a departure from the conventional holding / forcing / catching pen layout is required, to something more akin to mobile crutching trailer raceways.

All UPSP prototypes are fed by some type of loader. Loaders are typically either a V-belt or crush type system.

With some systems, sheep can be pre-crutched, fribs and top knot removed on the loader, physically separating this wool from the higher value wool removed on the UPSP.

Sheep still need to be dry and empty for shearing, so the same holding area is required. The most important design consideration in moving sheep from large holding pens to the UPSP is to allow access for a well trained dog; with such features as dog access portholes in raceways and external-to-race side board ramps on inclined raceways. Contrary to popular belief, self-drawing races do work, but you must be prepared to understand how they work and set them up, and most importantly, have a properly trained dog.

Sheep Exit

Sheep exit paths are also very different across UPSP's, so the UPSP type needs to be selected first. Some use directional chutes, and some deposit shorn sheep onto the floor. Those differences aside, virtually all UPSP's can be accommodated with portable raceway setups with a funnel like entry. Freshly shorn sheep exiting a UPSP need clear stimuli to entice them in the required direction, such as: being able to see other sheep, or, being able to "escape" towards light.

Wool Flow

Conventional wool handling tasks can be analysed into two broad categories:

- transporting wool; and
- value adding to the wool by defect removal such as stain and vegetable matter.

UPSP's will have some form of mechanical conveying to transport the wool, freeing a wool handler up to focus on the value adding opportunities (in some instances, the shearer may have already performed the defect removal process).

Importantly, this eliminates the conventional practice for a wool handler to "on-demand" clear belly wool and fleece wool immediately the shearer finishes. On UPSP's, belly wool is typically hand thrown by the shearer into a nearby butt. The conveyors to be used with the UPSP's would deliver wool directly to a skirting table, or where defect removal had already been completed and the mob had been pre-drafted into wool lines, wool can be directly conveyed into a wool press.

OH&S Considerations

The concept of UPSP's is built on the pillars of improving productivity and reducing exposure to OH&S risks. Wool harvesting is an industrial workplace. As discussed in other sections of this resource, wool producers and contractors have moral and legal obligations to take responsibility for the workplace.

UPSP's are designed to deliver the sheep to the shearer (conventionally an area of significant and serious injury incidence) with minimal effort by the shearer, and minimal injury risk exposure. UPSP's are designed to safely restrain the sheep, a difficult balance to achieve between sufficient restraint, unfettered blow access, and presentation of optimal shearing surfaces.

Pictures – UPSP

