UQBR Aquaria SOP 18 – Use of the Tritone Automatic Feeder

REQUIREMENT:

1. To ensure that the requirements and regulations as set out by the following are met as far as practicable:
    *   AEU UQ
    *   The Code
    *   OGTR
    *   Department of Agriculture and Fisheries (DAF)
    *   QLD Workplace Health and Safety, and
    *   UQ OH&S

2. To standardise practice for all UQBR staff and researchers within UQBR facilities.

3. Annual review is required to maintain best practice and usability of this SOP.

RESPONSIBILITY:

It is the responsibility of the individual performing animal handling procedures and techniques to ensure they have been assessed as competent.

Please Note:
This UQ Biological Resources (UQBR) SOP expands upon UQ Animal Ethics Unit SOPs. This document outlines the procedures followed by UQBR and should not be referenced in Animal Ethics Applications.

No changes or deviations from this SOP are to occur unless the Director of UQBR gives prior authorisation.

NB: The use of (*) indicates this statement is dependent on the facility procedures
NB: The use of (**) indicates this statement is dependent on AEC Approvals

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OBJECTIVE:

To describe the procedure to use the Tritone automatic feeder ensuring consistent and accurate feed amounts are provided to each tank.

I.   EQUIPMENT

    1. Equipment
- Tritone feed bottles
- Tritone barcodes

    2. Consumables

    3. Administration

II.   PREPARATION OF EQUIPMENT

III.   PROCEDURE

Daily Tritone Check

1. As part of the room checks, check each tritone "traffic light" located at the top of each isle. (Refer to Figure 1)

    i. **Red flashing** - Indicates an alarm
    ii. **Solid red** - Indicates the Tritone has stopped working due to error
    iii. **Yellow flashing** – Indicates the Tritone is on hold
    iv. **Green** – Indicates currently running

Figure 1- "Traffic light" Beacons indicating triton operation status

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Clearing Alarms

1. Access the Tritone

   a. If the tritone is **NOT accessible**
      - Press the Yellow button located below the 'traffic signals' (Refer to Figure 2), this will move the Tritone into the aisle so it may be accessed

   b. If the tritone **IS accessible**
      - Press the 'Open' Button on the tritone Home Screen, this will move the triton into the aisle for better access.

Figure 2- Orange button for calling and/or putting the triton on hold

2. Press the'F1' button to check alarms (Refer to Figure 3)
      i. This will show a list of current alarms (Refer to Figure 4)
      ii. Note relevant current alarm that may need to be actioned

Figure 3- Tritone Home Screen

Figure 4- Tritone alarms and alarm history

3. Press '**F3**' Report' to show history of all alarms
4. Press '**F2**' to Exit and go back to home screen.

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Resolve Feeding Error

This may occur without identifying the error is occurring. Tanks may be fed too much or too little, most commonly tanks are fed too little. The Tritone scales weigh each both before and after each feed run, when feeding a number of smaller tanks the scales may not detect the difference in weight and this can trigger an alarm.

1. Check feeding bottles are not clogged up, identified by food build up inside the nozzle.
2. If a clogged feeder bottle is found use a bottle brush to clear the bottle nozzle.

Bottle Grip Error

1. Access the 'Service Engineer' menu by inputting its password (Refer to Figure 5 and 5a).

Figure 5- View of service engine menu

Figure 5a- Tritone password screen

2. Scroll to the Bottle Gripper icon in the menu.
3. Appearance (Refer to Figure 6).

- If the tin food icon is in
  i. A **grey box**, the tritone is indicating there is no bottle in the gripper.
  ii. A **green box**, the tritone is indicating there is a bottle in the gripper.

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- Press the icon to change to the tritones 'Actual' state.

Figure 6- Bottle in gripper menu

Checking for Un-scanned Tank Labels

1. Enter password for Supervisor

2. Select Supervisor menu icon (Refer to Figure 7)

Figure 7- Menu options visible after entering "supervisor" password

3. Use **F3** and **F4** to scroll through the menus -There will be 3 Pages of menu icons are displayed (Refer to Figure 8)

Figure 8- Supervisor menu options

4. Check if the Tritone is detecting the feeder code labels by selecting 'Label Status' (Refer to Figure 9).
   - **Green** Square on positons where a feeder code **was** detected
   - **White** indicates there is **no** feeder code recorded in that position
   - The label status is based on the **last** scan of the tanks

Figure 9- supervisor label status view, rack 1

5. Use the **F3** and **F4** buttons to scroll through the racks on that Tritone.
   - Take note of any labels that were not detected
   - Select back to return to the main menu
   - Follow below procedure to Scan a Label into the Tritone

   Note:
   - ✓ Make sure to re-align the tank labels to their proper position if they did not appear on the 'label status' screen.
   - ✓ Ensure that ALL tanks have labels at ALL times, unless notified otherwise by the facility manager/fish owner.

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Scanning a Label into the Tritone Memory

<u>Manual Process:</u>

1. Access the 'Scanner' menu or access the Technician Password screen

2. Set the position of the label to be scanned (Refer to Figure 10) Select the
   - i. Rack # (P)
   - ii. Tank number
   - iii. Row Letter

Figure 10- "Scanner" menu at Supervisor's and Technician's level

3. Save the position by pressing
   - i. Green/blue circular arrow
   - ii. F2 Move to

4. Once in position press 'Trigger' to scan the location
5. The screen will clean and then display numbers in the boxes.
   - i. Numbers in the left box indicate a label on the left side of the tank
   - ii. Numbers in the right box indicate a label on the right side of the tank

6. If completing this procedure within the Technician password method, the top square will show the label ID (Top square), Vertical position (middle #), Horizontal position (Bottom #)
   - i. If one of these boxes turns red adjust the label based on the position to be adjusted
   - ii. Press 'Trigger' to re-scan
   - iii. Complete this step until each position is no longer red indicating the label is in the correct position to be read by the Tritone

7. To show a list of labels that require adjusting select 'Open Log' (Refer to Figure 11).

Figure 12- Supervisor "Enabled" menu

Figure 11- Scanner error log

8. Complete the above steps for each label to be adjusted
9. Select the 'Delete All' within "Open Log" which will clear the list of labels to be adjusted

Deactivating or Activating Functions

Some functions of the Tritone may need to be deactivated and re-activated, this may include the scales function.

1. Access the supervisor menu
2. Open the 'Enabled' icon (Refer to Figure 12)
3. Uncheck or check the box beside each function e.g. 'Scales'
4. The following functions may also be updated at this menu
   - Numbers of racks to be fed by the Tritone
   - Updating the function of the traffic beacons

Re-Fill Food Bottles

Each Monday, Wednesday and Friday the Tritone food bottles are re-stocked.

1. Call the tritone from the storage unit – refer to "access the triton" section above
2. Access the **Service Engineer** Menu
3. Select the Storage Unit Icon
4. Select the food bottle to be filled using the scroll function (Refer to Figure 13)

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Figure 13- view of coordinate settings

5. Select 'F3 Pick up' for the Tritone to raise the feed bottle
6. Remove bottle from the gripper releasing the clamps hooked onto pins (Refer to Figure 14)

Figure 14- Food bottle in gripper and close-up of spring clamp that holds bottle in the gripper

Remove plastic cap from bottle
7. Fill with appropriate food
8. Inspect nozzle to ensure it is not clogged (Refer to figure 14b)

Figure 14b- Feed bottle nozzle

9. Replace cap on bottle, ensuring the tab is placed pointing towards the nozzle
10. Place bottle into the gripper – ensure clamps are properly clipped into place
11. Select 'F2 Place' to return the food bottle to its home base position (Refer to Figure 14c)

Figure 14c- food bottle in rest position at home base

Adjust Feeder Nozzle Position

- At times the nozzle requires re-adjustment to ensure the food is dropped directly over the tank hole.
- Incorrect nozzle positions result in food placement outside the tank that is visibly noticeable and results in incorrect feeding of fish. – Refer to Figure 15

Figure 12- Feed being deposited with wrong nozzle position.

1. Pick up bottle as per above (Refer to re-fill procedure steps 1-5)
2. Within the "**Service Engineer**" Menu select the 'coordinate settings' option
3. Select the tank location
4. Ensure food type is set to "**Dry**" - (Refer to Figure 16)
   i. If it is set to "**Art**" press the "Art" icon to **change**.
   ii. Press the "**refresh button**" (circular arrows) to update the location position

Figure 13- view of "coordinate settings" menu

5. Once the new coordinates are set, Select '**Move to**' to relocate the Tritone to the set location
6. Select '**Dosing Position** - this will tilt the bottle and feed the tank
7. Visually check alignment of nozzle with feeder hole. Cross check the nozzle position with the changes that were made to ensure it is now feeding accurately.
8. Select '**Position Zero'** to return gripper to neutral position

9.   Update the feeding coordinates if required

   i.   Values updated will alter the feeding position in **mm**.
   ii.   Update the X and Y **Offset** values to reach the desired location of the nozzle

   ▪   The updated number is the difference between the current # and desired #
   ▪   In the X offset:
      •   **Adding** a number will move **away** from the home base
      •   **Subtracting** a number will move **towards** the home base
   ▪   In the Y offset:
      •   **Adding** a number will move **down** from current location
      •   **Subtracting** a number will move **up** from current location

Note: Editing the **Axis** value can only be done in the Technician Menu, this will update the **entire** rack's row or column based on its position from the home base, and should be used with caution

   1.   Follow the prompts to update the Master X axis
      •   This will update all X axis coordinate settings for the rack E.g. A1, B1, C1 etc.
   2.   Follow the prompts to update the Master Y axis
      •   This will update all Y axis coordinate settings for the rack E.g. A1, A2, A3 etc.

10.   Select '**Pencil'** icon to save the updated location settings
11.   Continue on to other locations that need adjusting

Light Curtain

- All tritones have a light curtain at the external base either side of the unit. – Refer to figure 17

Figure 17- Triton's light curtain

- The Light curtain in the triton units has to be align to match the top lasers/receptors to the bottom lasers/receptors
  - To check this, make sure the LEDs at top match the LEDs at the bottom.
- The light curtain acts a SAFETY feature to stop the triton from running into obstacles or personnel.
- The light curtain has to be kept clean at all times.
  - To Clean: using a Kim wipe, gently wipe over the light curtain unit.

IV. CONSIDERATIONS

1. The time spent will be proportional to the holding capacity of each room and facility
2. Environmental parameters are recorded during this procedure
3. Complete checks at agreed facility times
4. When performing check on all rooms in a facility (i.e. the weekend checks), ensure the room hierarchy is followed
5. Adverse events should be referred to UQBR SOP 22 UQBR Veterinary Care Protocol

V. SAFETY

1. PPE use is essential when completing this task.
2. All accidents, injury or near misses are to be reported immediately to the Facility Manager and recorded on a UQ OHS Incident Report Form

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VI. REFERENCES

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