Inventory Multiple Forms & Seasonal Availability Issues

Multiple Forms

Overview
Currently, in the production GRIN-Global system, each accession can have only one default inventory for distribution. In other words, in the current Public Website (PW), several forms may be listed, but the user cannot request a specific form. When the user requests an accession, the PW software automatically selects which form the requestor will receive.

In the following example, the requestor sees four different forms listed, but she cannot specify which form she wants; she can only simply select the accession:

When the requestor proceeds with the order, at some point she will see that the software selected Cutting in the shopping cart:

Why Cutting? Because Cutting was the default inventory, and it was available. (In the CT screen below, the row with the two Y’s in the respective fields determines that this record is the default inventory row.)
The record’s **Standard Distribution Form** field is CT (Cutting).

Then why were the other forms listed on the PW search results page? Because their respective inventory records had amounts entered in the **Quantity on Hand** field.

Note: There was no direct indicator for the requestor to specify any other form than the default form. The requestor can of course elaborate with comments in the **Special Instructions** box on the Public Website when submitting the request and the order processor can read these comments in the wizard’s **Special Instructions** box.
When processing an incoming order within the Order Wizard, the default inventory can be overridden by the order processor using the CT’s order wizard; a different inventory lot can be substituted.

However, in the DEV (developer testing) database, the software has been altered to allow for multiple forms being available simultaneously. Also, the requestor can order any of the available forms.

In the Public Website,
In the shopping cart, a dropdown box displays when multiple forms are available:

**Multiple Forms – Questions to Answer**

- Implement the DEV software to the GG production database?
- Should it be possible for a requestor to order multiple forms of the same accession in the same order?
Seasonal Availability

Several members of the AdCom formed a subcommittee to develop requirements and discussed their requirements with the GG development team. As the developers understand the requirements at this point, there is the need to:

- flag certain inventory forms as being seasonally available
- set dates for the availability start and end dates
- have the Public Website present which forms are currently available considering the seasonal availability constraints
- have the Public Website searching (& finding of) accessions unaffected by seasonal status (so that accessions currently not available for distribution because of seasonal constraints still appear as active accessions in the search – the users can find, but they cannot order)

Questions which need to be addressed

- When the ordering date is not within the seasonal date range, what happens?
  - the order is submitted, but the item not in season is not filled? (Could the order wizard automatically split this to a different order?)
  - the order is submitted, but the items not within the seasonal range go into a hold order queue
  - items not in the date range cannot be ordered, but instead go into the requestor’s wish list when those items are selected by the requestor
- When the date is not within the date range, is this accession counted as an available accession?
  - Yes?

The development team reviewed this and has thought of several approaches that could be taken to handle seasonal availability. To summarize:

A. use the existing schema (maintain separate inventories and availably dates for each possible form type) for each accession
B. have a single inventory per accession covering multiple distribution types detailed for the crop in another table (add a table detailing the forms in which a clonal crop can be distributed and have one inventory row represent them all)
C. hybrid of the first two. Create a new inventory maintenance form table to store the possible form types of the crop and have triggers then ease the curators’ job by automatically creating separate shadow inventory rows

The next several pages explain in more detail these three approaches.
Considerations in using differing approaches are detailed on the following pages

**Approach 1**
The first approach is to use the existing schema and improve the software.

The current inventory table allows setting availability start and end dates for each inventory individually, but it uses a standard date field that includes a year which is a chore to keep updated. A scheduled process to update the year would be an improvement. Currently those start and end dates do not control availability (or anything).

An alternative could be to use only the month and day for the start and end date availability determination. Yearly changes would not be necessary. For example, March 1 could be the start date and April 15 the ending date.

The Public Website at least will need to be modified to implement seasonal availability in the shopping cart. A workable system probably isn’t too difficult to implement if clonal sites are willing to add inventory records for each form they want to make available, and to maintain the start and end dates on each sample individually.

Adding default availability start and end dates in the **Inventory Maintenance Policy** table could probably help in this regard.

**Complication**
However, the clonal sites might prefer to not have separate inventory records maintained for each form they potentially distribute (and not update the availability dates of thousands of records). In that case, that adds two more requirements, which calls for a more complicated solution:

- Set the forms available for an entire crop, rather than accession by accession
- Set the availability start and end date for each of those forms once, rather than inventory by inventory

**Approach 2**
The second approach is to add a table detailing the forms in which a clonal crop can be distributed and have one inventory row represent them all.

The forms for a crop could possibly be stored in a child table of **Inventory Maintenance Policy**, called **inventory_maint_form**. This table would need to have at least the form type and seasonal availability start and end dates. Distribution units could also be included, or simply use **“Count.”** A special inventory form type would need to be created which means “multiple forms as specified by maintenance form.” For example, a code such as code “??” could be used for the new form type. The PW and Order Wizard would take the new table and form type into consideration.
Possibly SQL could be written in a dataview such as the following SQL:

```sql
SELECT
    i.inventory_id,
    CASE WHEN i.form_type_code != '??' THEN i.form_type_code
    ELSE imf.form_type_code
    END AS form_type_code
FROM inventory i
LEFT JOIN inventory_maint_form imf ON imf.inventory_maint_policy_id = i.inventory_maint_policy_id
```

Join the inventory table to the form table so that if there were six form types you’d get six rows of inventory joined to maintenance form. If there were no form rows you would still have one inventory row if a left join was used.

This could work for the PW, but the CT wants a unique Primary Key (PK). Having the same inventory_id show up multiple times is an issue.

**Approach 3**
The third approach is a hybrid of the first two. Create the new inventory maintenance form table to store the possible form types of the crop and have triggers then ease the curators’ job by automatically creating separate shadow inventory rows.

The site enters multiple plant forms for the strawberry maintenance policy, such as **CT**, **RH**, and **LV**. When they create an inventory record of type SD nothing special happens, but when they create one of the special type ?? the trigger automatically creates three more inventory rows for types CT, RH, LV. If they delete the ?? inventory it deletes the shadow inventories as well. If the site modified the availability start and end dates in the maintenance form table or added or deleted forms, triggers would need to update, add, or delete shadow inventories as needed. The site could ignore the shadow inventories, but they might make it easier on the existing PW and OW, such as giving you a unique inventory id for each form type of an accession.

In conclusion, there are three approaches:

1. Maintain separate inventories and availability dates for each possible form type for each accession
2. Have a single inventory per accession covering multiple distribution types detailed for the crop in another table
3. Hybrid – separate inventory rows automatically maintained by triggers based on details in another table

The question is: Do any of these approaches look like they would meet the needs of the clonal sites?