Why Talk About QC Now?

• Increased number of stocks in the collection
• Increasing number of specific types of stocks that require more attention
• The development of new methodologies producing a number of new types of resources
• Time required to collect certain number of user complaints

• **We have always done QC!**

• In the past few years, it has grown to become a separate part of our operation

• **We have collected for 4 years worth of data; only data from last year are presented**
### Types of QC performed at ABRC

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<th>Internal QC</th>
<th>DNA</th>
<th>Seed</th>
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<td>Insert in a clone</td>
<td>• New donation</td>
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<td>complaints</td>
<td>not present</td>
<td>• Seed reproduction</td>
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<td></td>
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<td>• Seed preservation</td>
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<th>DNA stock replication</th>
<th>Cannot identify insertion in a T-DNA line</th>
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<td>New donation</td>
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We welcome any feedback you can provide for the stocks we distribute. This information can include:

- Verification of an insertion
- PCR results
- Sequencing results
- Incorrect background
- Problem with germination / viability
- Problem finding the insertion
- Unexpected genotype/zygosity
- Incorrect stock

Your comment can be added directly to the stock record in TAIR. Go to the stock detail page, scroll to the bottom, and click on "Add My Comment". If you have noted a problem, ABRC will do the appropriate Quality Control and post our results there.
User Complaints: Germination

What happens when a researcher reports a problem with germination?

- We will send the researcher a new batch of seeds
- We will perform a germination test
- We will let the researcher know the results of our test
- If there is a discrepancy we will work with the researcher trying to understand what that discrepancy is
- If the stock is below 81% germination the stock will be replanted
Germination Test Results

Seed Quality Control 2017

- Internal QC: 3240 stocks passed QC, 397 stocks failed QC
- User Complaints QC: 88 stocks passed QC, 59 stocks failed QC
User Complaints: T-DNA Insertion Lines

Problems:

- Cannot identify insertion in a T-DNA insertion segregating line
- SALK_C* confirmed line is segregating
- Cannot identify insertion in a SALK_C* confirmed line

*SALK_C: confirmed from SALK, SAIL,GABI-Kat and WisconsinDs-Lox collections

Action:

- Problems with identifying an insertion are flagged in the local database
- When two researchers report a problem, we make that line “not_distributed” and only available by special request
- We test the lines with one problem
T-DNA Insertion Lines – QC Flow

User complaint

Enter problem (ID insertion) in local DB

Is there more than one problem?

No

Genotype at ABRC

Is the line wild-type?

No

Is the line homozygous for the insertion?

Yes

Add comment in local DB

Yes

Make the line not_distributed and make segregating parent available

ABRC genotyping confirmed presence of the T-DNA insertion in a homozygous state using primers suggested by SIGnAL T-DNA primer design tool.

Availability: not_distributed
Availability Comment: Available by special request. ABRC genotyping showed that this line is wild-type using primers suggested by SIGnAL T-DNA primer design tool.

Availability: not_distributed
Availability Comment: Available by special request. Two or more researchers have reported a problem with this line. Contact ABRC for details.
DNA Stocks QC Flow

User complaint

Test* at ABRC
Sequencing
Restriction Digest
PCR

Change availability

Ask donor for a replacement stock

Send a replacement

Inform user

Make new stock available

Donation

Determine sample size

*single colonies of the original and the distribution stock

Test shows that there is a problem with a stock

Change availability
DNA Stocks: QC Results

DNA Quality Control 2017

Percentage

- Stocks failed QC
- Stock passed QC

Donation QC: 184
User Complaints QC: 12 (passed QC)
Seed Stocks: Error Rate

Error Rate = \frac{\text{number of user complaints}}{\text{number of stocks ordered}}

Germination Problems (January 2017-December 2017)

• Reported Error Rate: 147/75,230 = 0.001 (between 4 and 5 sigma level)
• Confirmed Error Rate: 88/75,230 = 0.001 (between 4 and 5 sigma level)

T-DNA Lines Insertion ID Problems (October 2007-December 2017)

• Reported Error Rate: 975/568,101 = 0.0017 (between 4 and 5 sigma level)
• Confirmed Error Rate: estimated at 0.001 (between 4 and 5 sigma level)