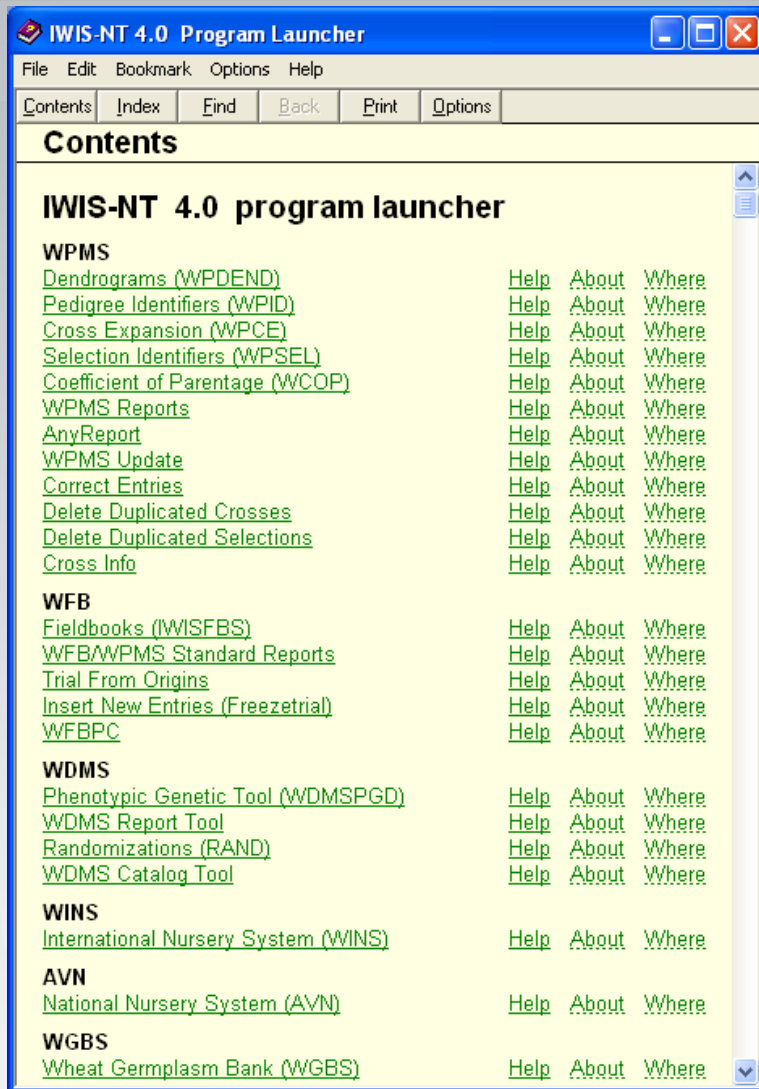


IWIS to ICIS conversion strategy

Jesper Nørgaard Welen, CIMMYT

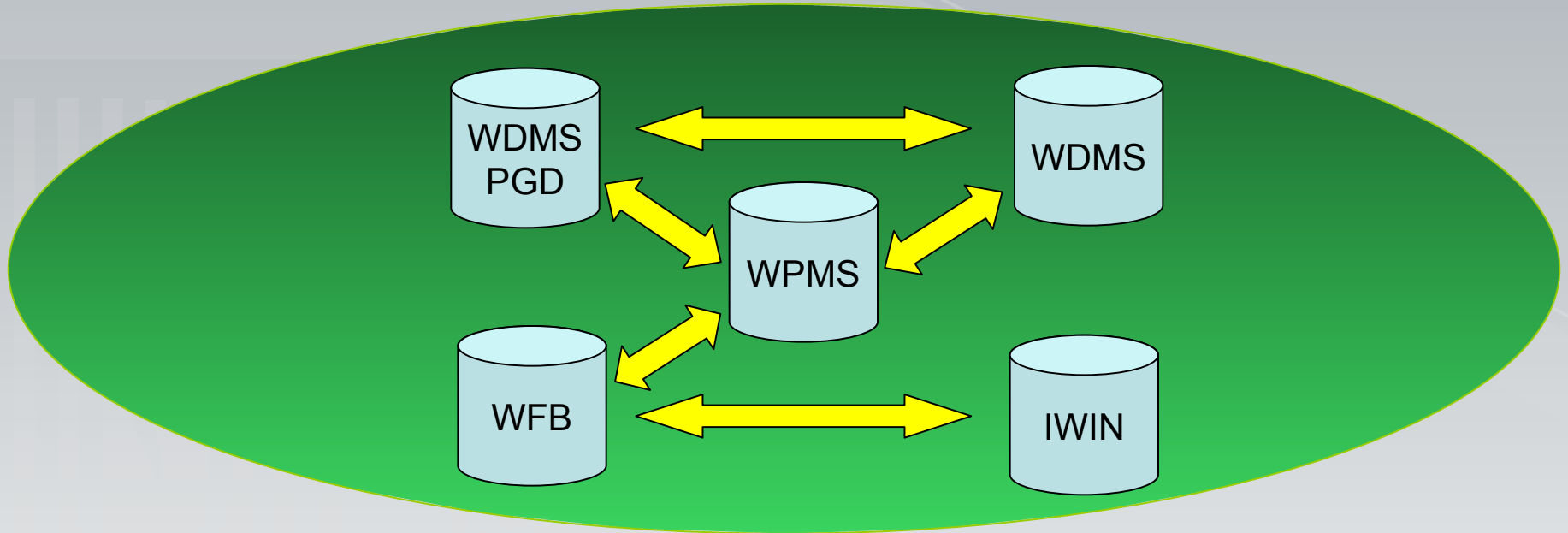
2006-05-19



| IWIS-NT 4.0 program launcher | | | |
|---|----------------------|-----------------------|-----------------------|
| WPMS | | | |
| Dendrograms (WPDEND) | Help | About | Where |
| Pedigree Identifiers (WPID) | Help | About | Where |
| Cross Expansion (WPCE) | Help | About | Where |
| Selection Identifiers (WPSEL) | Help | About | Where |
| Coefficient of Parentage (WCOP) | Help | About | Where |
| WPMS Reports | Help | About | Where |
| AnyReport | Help | About | Where |
| WPMS Update | Help | About | Where |
| Correct Entries | Help | About | Where |
| Delete Duplicated Crosses | Help | About | Where |
| Delete Duplicated Selections | Help | About | Where |
| Cross Info | Help | About | Where |
| WFB | | | |
| Fieldbooks (WISFBS) | Help | About | Where |
| WFB/WPMS Standard Reports | Help | About | Where |
| Trial From Origins | Help | About | Where |
| Insert New Entries (Freezetrial) | Help | About | Where |
| WFBPC | Help | About | Where |
| WDMS | | | |
| Phenotypic Genetic Tool (WDMSPGD) | Help | About | Where |
| WDMS Report Tool | Help | About | Where |
| Randomizations (RAND) | Help | About | Where |
| WDMS Catalog Tool | Help | About | Where |
| WINS | | | |
| International Nursery System (WINS) | Help | About | Where |
| AVN | | | |
| National Nursery System (AVN) | Help | About | Where |
| WGBS | | | |
| Wheat Germplasm Bank (WGBS) | Help | About | Where |

- Iwis consists of 30+ programs mostly written in Visual Basic accessing SQL Server 2000
- Most programs use ADO and call any of 980+ stored procedures to access data
- Challenge: How to convert to ICIS
- Precondition: we know which tables and fields correspond to GMS and DMS
- We don't know which structures/programs in ICIS would handle WINS and other specific tables in WGBS etc.

IWIS Components



WPMS. Wheat Pedigree Management System

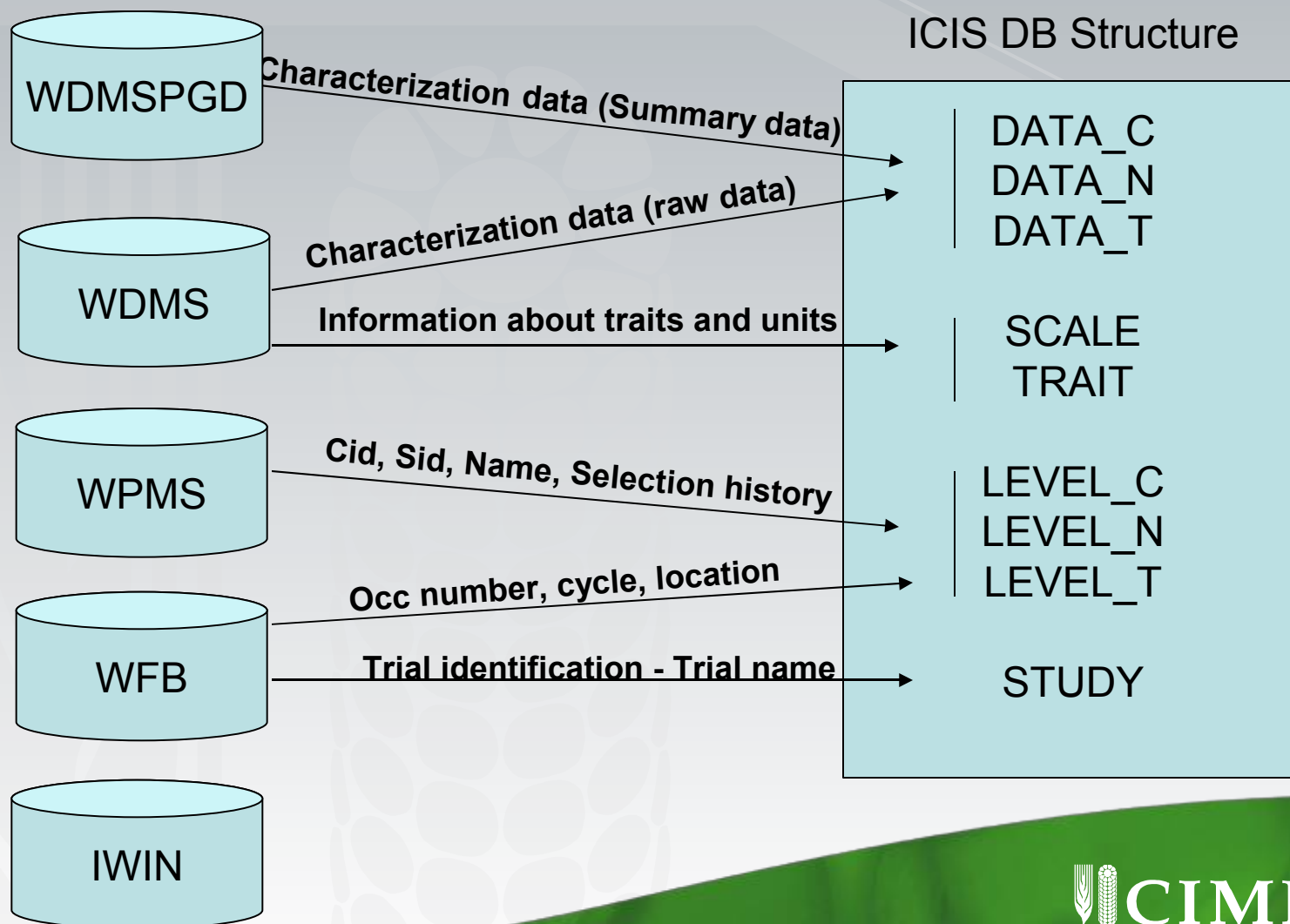
WFB. Wheat Field Book

WDMS. Wheat Data Management System

WDMSPGD. Wheat Data Management System Phenotypic and Genetic Data

IWIN. International Wheat Information Network

WDMS to ICIS DMS



IWIS to ICIS conversion strategy

- Any strategy would have to convert PMS to GMS, and IWIS DMS to ICIS DMS, so this straight data conversion has been finished:

Sheer volume:

| | |
|----------|----------------------|
| GERMPLSM | 5,409,198 records |
| ATRIBUTS | 13,471,277 records |
| NAMES | 5,274,550 records |
| DMS | ~ 21,000,000 records |

which means the 2 Gb limit of Access becomes a real problem

- We would like to give cooperators and NARS a full set of GMS/DMS data, but it can't be done with Access (probable solution: PostgreSQL, MySQL)
- Making a local installation of these two DB is not as simple as Access (it comes directly with Office, no admin needed etc.)

IWIS to ICIS conversion strategy

PMS to GMS Conversion 5.99.1 PM_NT\IWIS_DB 2006-03-24 09:28:16

Help

Start CID: 213017 End CID: 515000

CID: 267039

Expected time left: 2 day(s) 20 hr. 52 min. 41 sec.

Current duration: 17 hr. 58 min. 1 sec.

Elapsed 1 sec.

| | | |
|--------------|---|---------|
| pms_sel | 0 | 162,874 |
| pms_names | 0 | 38,330 |
| pms_non | 0 | 12,355 |
| new germplsm | 0 | 37,520 |
| new names | 1 | 314,578 |
| new atributs | 2 | 624,626 |

Run Conversion! Exit

Often the conversion would seem to be on schedule exactly as planned ...

IWIS to ICIS conversion strategy

PMS to GMS Conversion 5.99.1 PM_NT\IWIS_DB 2006-03-30 17:02:46

Help

Start CID: 1

End CID: 515000

CID: 8066

Expected time left: 17 day(s) 14 hr. 26 min. 42 sec.

Current duration: 6 hr. 55 min. 5 sec.

Elapsed 29 sec.

| | | |
|--------------|----|---------|
| pms_sel | 41 | 41,028 |
| pms_names | 0 | 11,554 |
| pms_non | 0 | 2,553 |
| new germplsm | 0 | 3 |
| new names | 55 | 79,209 |
| new atributs | 97 | 121,080 |

Run Conversion! Exit

Sometimes it would come to a grinding slow-down, one time the estimated time was about 180 days ...

Problems: Indices all there, server capacity, connection

IWIS to ICIS conversion strategy

PMS to GMS Conversion 5.99.1 PM_NT\IWIS_DB 2006-04-04 15:50:21

Help

Start CID: End CID:

CID: **105459**

Expected time left:

Current duration:

Elapsed 1 sec.

| | | |
|--------------|--------------------------------|--|
| pms_sel | <input type="text" value="0"/> | <input type="text" value="1,109,478"/> |
| pms_names | <input type="text" value="0"/> | <input type="text" value="20,462"/> |
| pms_non | <input type="text" value="2"/> | <input type="text" value="16,681"/> |
| new germplsm | <input type="text" value="0"/> | <input type="text" value="108"/> |
| new names | <input type="text" value="6"/> | <input type="text" value="1,369,864"/> |
| new atributs | <input type="text" value="6"/> | <input type="text" value="3,353,519"/> |

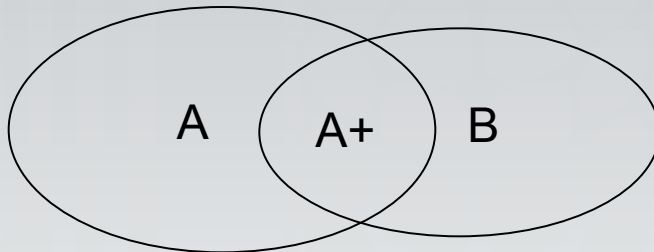
Sometimes the estimation would be a little optimistic ...

IWIS to ICIS conversion strategy

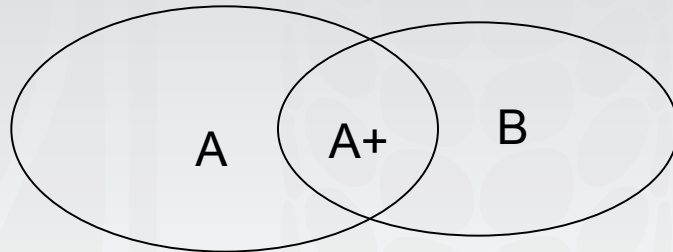
- A number of minor issues in ICIS must be solved to be able to use it instead of IWIS, for instance generated pedigrees should be identical, which INI setup the typical IWIS breeder would need etc. (crop=bw)
- We know that some programs like WCOP and other have an equivalent functionality in ICIS, and therefore need not to be converted
- Problem: we have relatively limited programming resources in CIMMYT at the moment. A full conversion of all 30+ IWIS programs would be a considerable task

IWIS to ICIS conversion strategy

- Conversion is not as straight forward as upgrading from Wordperfect (A) to Winword (B), where you just need to match data fields (A) with data fields (B) in a file conversion (often provided by wizard), functionality (A) with functionality (B) in a description to users, and ready ...



Data



Functionality

IWIS to ICIS conversion strategy

- A simple first step could be to make triggers or other update mechanism that will mimic changes in IWIS to the ICIS data structure so that we avoid having to run the IWIS-to-ICIS conversion more times, we would continuously have current and updated ICIS data. IWIS can run with only minor program changes, and we will always have a full ICIS GMS/DMS set of data (could be extracted to breeder for use in a proper ICIS installation in laptop/desktop). But this is not a full solution, of course.
- If we run updates with ICIS programs on the converted IWIS-to-ICIS data, integrity will be lost from IWIS to WINS and other proprietary IWIS systems. Also new updates in IWIS will not be reflected in the previous IWIS-to-ICIS conversion.

IWIS to ICIS conversion strategy

- A more thorough step would be to replace underlying PMS/DMS tables in IWIS with its equivalent ICIS tables, and let IWIS update those. Still not a full solution.
- Concerning functionality, we could opt for throwing it away (if obsolete), reprogram in new platform, or identify other ways to obtain the same functionality. Some reprogramming perhaps could be carried out in IRRI or ICIS partners with a possible common benefit for all users of ICIS
- Other ideas?

IWIS to ICIS conversion strategy

What lumps of functionality would IWIS users miss in ICIS?

- IWIS validates all incoming DMS data according to specified ranges for given trials and traits, as an example for this, you can specify that for a specific trial you want to check that plant height is between 50 cm and 150 cm – and facilitates editing data outside range

TRAITS

Select trait :

Trait name :

Trait abbreviation : Format VB.

Class : Cell : Mean :

Standard scale :

Scale Information

Values

| | | | |
|--|---------------------------------|----------------------------------|---------------------------------|
| Scale type : <input type="text" value="C"/> Continue | Min. | Max. | Pgm |
| Value type : <input type="text" value="R"/> Real | <input type="text" value="50"/> | <input type="text" value="150"/> | <input type="text" value="Bw"/> |

IWIS to ICIS conversion strategy

What lumps of functionality would IWIS users miss in ICIS?

- Easy integrated parsers of pedigree and selection history (designation) in many different programs of IWIS

The screenshot shows a software window titled "Update Pedigree" with a blue title bar and a close button. The window is divided into three tabs: "Pedigree", "Cross", and "Name". The "Pedigree" tab is active. The form contains several input fields and buttons:

- Pedigree**: A large text input field with a "Parse" button to its right.
- CID**: A text input field containing "5919", followed by "Name to add" and another text input field, and a "Search" button.
- Female**: A text input field containing "FRONTEIRA" and a "Parse" button circled in red.
- FCID**: A text input field containing "796", a "Search" button, and an "Exp." dropdown menu.
- FSID**: A text input field containing "1", a "Search" button, a "Cross Type" dropdown menu set to "S", and a "Free" checkbox.
- Male**: A text input field containing "MENTANA" and a "Parse" button circled in red.
- MCID**: A text input field containing "5915", a "Search" button, and an "Exp." dropdown menu.
- MSID**: A text input field containing "1", a "Search" button, a "Year" input field containing "0", and a "Country" input field.
- BCID**: A text input field containing "###5919", a "Mega" input field, and a "Location" input field.
- Make Std BCID**: A button next to a "BCID2" text input field.
- Organ.**: A text input field.
- Program**: A text input field containing "BW".

At the bottom of the window, there are five buttons: "Insert", "Update", "Delete", "Clear", and "Exit".

IWIS to ICIS conversion strategy

What lumps of functionality would IWIS users miss in ICIS?

- Parsing of pedigree and designation always gives GID (not guaranteed in ICIS) because of naming standards (no duplicate names) and handling of duplicate designations not allowed in IWIS, so that no user intervention is required when parsing 10,000 lines

CrossInfo based on Excel Import/Export IWIS_W03 v.4.42.10 14-Feb-2006

Help Options Trial ID

Lines with Error Unresolved lines Total Lines

Input fields with error given a color and/or corrected

Selection History Pedigree CID SID INTRID TID+ENT

| Selection History | Pedigree | CID | SID | INTRID | Specific Na |
|-------------------|---------------------------|--------|-----|----------|-------------|
| CMBW91Y01581S | SHA8//TSH/DOVE/3/ALD/PVN | 73463 | 0 | | |
| | AKATSUKIKOMUGHI | 234 | 0 | | |
| | AKAZUKI | 235 | 0 | | |
| | CAL/NH//CMH73A.497/3/HER. | 23532 | 0 | | |
| | IWA 8606799 | 178576 | 0 | CW156324 | IWA 86067 |
| | CI 14106/CLM//MC | 324 | 0 | | |

Preference of input: Selection History, Pedigree, CID+SID, INTRID, TID+ENT

Import Clipboard **Export Grid** **Exit**

The Preference of input determines in which order input fields are used to identify lines

IWIS to ICIS conversion strategy

What lumps of functionality would IWIS users miss in ICIS?

- Specific field book print layouts (there are around 30)

| Y90-91 | | TID · | 170 | OCC : | 1 | Page : | 2 |
|--------|--|------------|-----|---------|---|--------|---|
| BW | | 21ST IBWSN | | 21IBWSN | | | |
| 1 | PENJAMO T 62 II7078-1R-4M-1R-1M-0MEX GABO 55 II344-9C-7C-1C <u>II8156-1M-2R-4M</u> | | | | | | 1 |
| 2 | TZPP/PL SIETE CERROS T 66 II3154-1M-2R-4M-0Y-0MEX <u>CM5287-I-1Y-2M-2Y-3M-0Y-0MEX</u> | | | | | | 2 |
| 3 | VCM//CNO67/7C KAL/BB <u>CM8399-D-4M-3Y-1M-1Y-1M-0Y-0MEX</u> | | | | | | 3 |

IWIS to ICIS conversion strategy

What lumps of functionality would IWIS users miss in ICIS?

- Delete duplicated crosses/selections in all IWIS across Trials and other GID holding tables
- Proximity search showing the most likely names similar to a searched name, in order of likeliness. It is similar to a fuzzy search, but then orders the output list of names
- Possibly other functionalities, we don't know for sure since we have not made an inquiry about this, but we would probably not get a qualified answer at this point, because they don't know ICIS enough to be able to compare. Vice-versa this also means that some earlier points mentioned could turn out to be “not a problem” for most IWIS users