MA SC

ICAR Sub-Commitee on Milk Analysis

ICAR Reference Laboratory Network

- Objectives & Stage of Progress in 2012 -

- INTRODUCTION - GENERAL OBJECTIVES -

History : **ICAR Session in Ottawa1994,**
=> Analytical Quality Assurance (AQA) policy by ICAR

General objective : Develop an **international AQA system for DHI** based on harmonised laboratory practices.

Goal : **Confidence, equivalence, comparability**
=> within / between countries,
=> worldwide : international genetic evaluation.

Implementation by MA SC :

> Guidelines for the harmonisation of analytical practices :
Analytical methods, Quality Assurance,

> International network of reference laboratories for milk recording analytical performances

ROLES OF THE LABORATORY NETWORK

ICAR Reference Laboratory Network
an international platform for milk recording

- to diffuse/promote GLP and AQA based on international guides and standards => communication *(Internet, website)*

- to provide precision traceability and anchorage to consensual international "true values" to routine labs via network members

=> analytical data harmonisation *(PTs, RMs)*

- to develop collaborations / programmes for laboratory purposes

=> Co-operation *(Education, training)*

Model & explanation provided every year to ICAR member organisations

Major task undertaken by ICAR
=
Laboratory analytical anchorage

Intent

> to establish (measurable) links from local/national/regional levels to the international level

> to harmonise laboratories on a international collective reference

Means

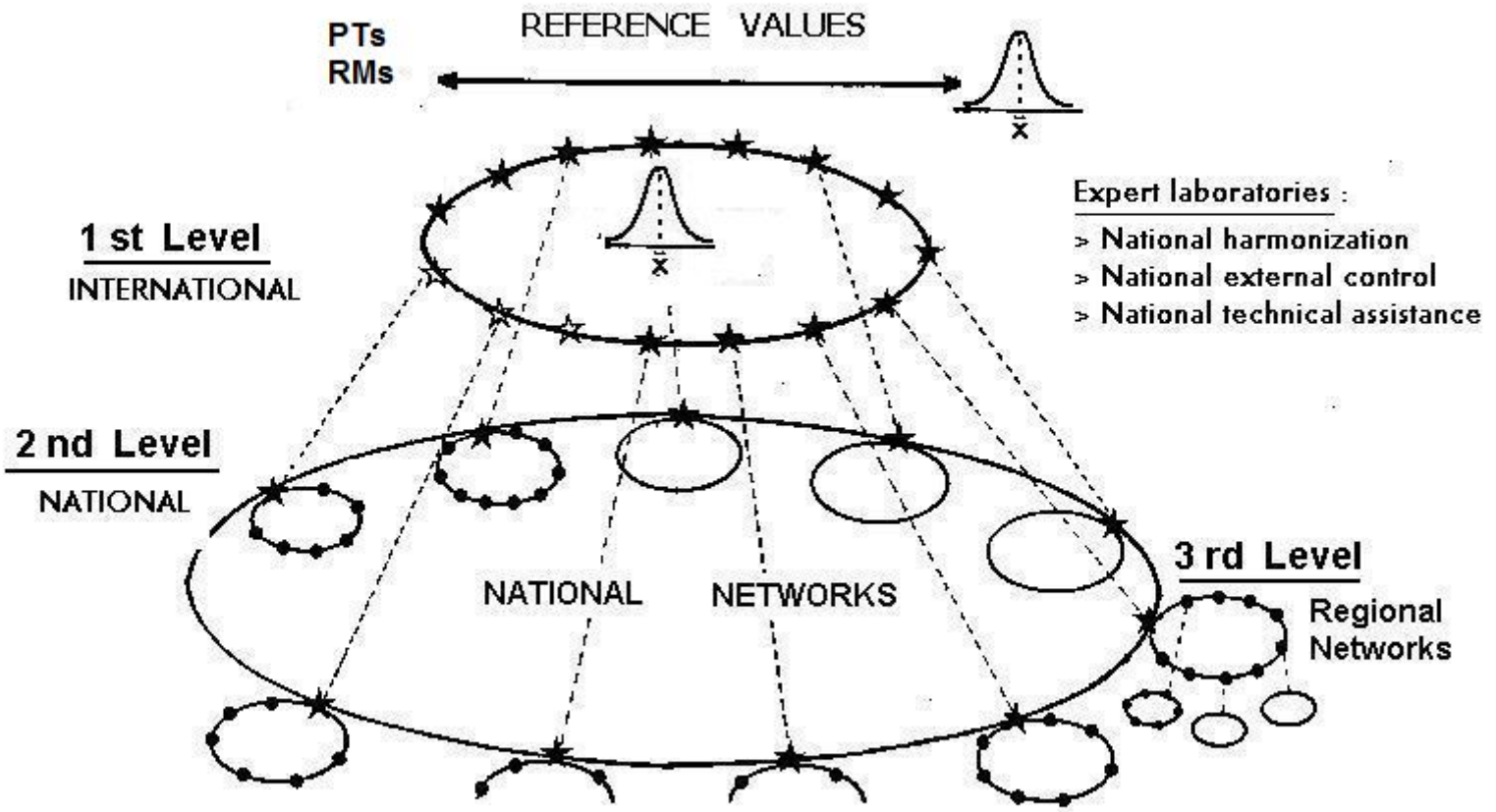
> International guidelines and standards ⇒ harmonised methodology

> Interlaboratory proficiency studies ⇒ lab trueness traceability

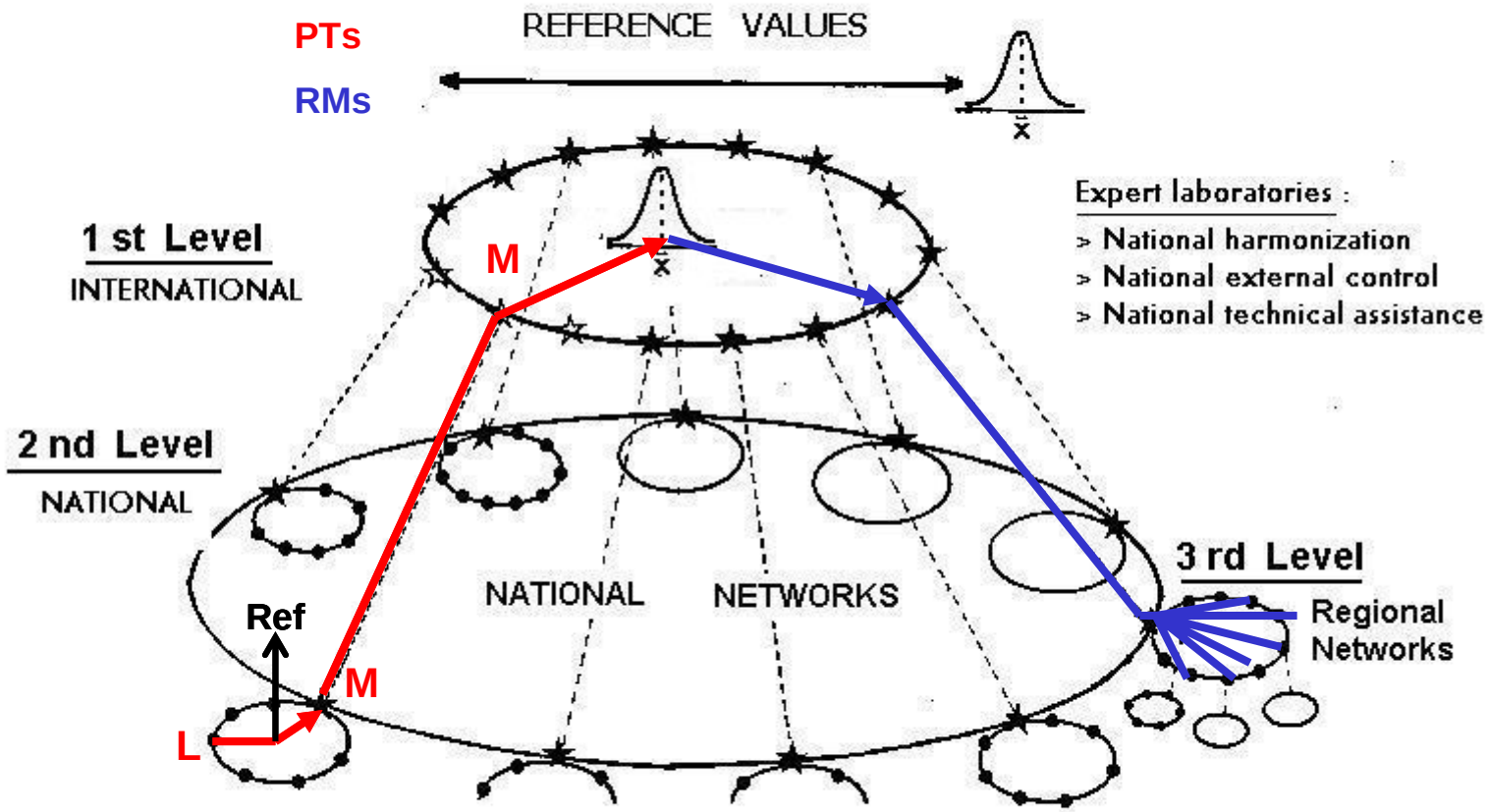
> Reference materials ⇒ trueness improvement

THEORETICAL STRUCTURE

ICAR INTERNATIONAL REFERENCE LABORATORY NETWORK



ICAR INTERNATIONAL REFERENCE LABORATORY NETWORK



Missions / activities expected
- Eligibility criteria -

- 1- National ring test organizer
- 2- Reference Material supplier
- 3- Master laboratory for centralized calibration
- 4- Teaching and training in laboratory techniques
- 5- Information on analytical methods
- 6- Evaluation of analytical methods/instruments
- 7- Research on analytical methods
- 8- National regulatory control of analyses
- 9- Routine testing where only 1 or 2 labs/country

ICAR Reference Laboratory Network

Membership in 2011-2012

41 laboratory members from **34** countries as follows:

Argentina	(1)	Austria	(1)	Belgium	(2)	Canada	(1)
Croatia	(1)	Cyprus	(1)	Czech Republic	(1)	Denmark	(1)
Estonia	(1)	Finland	(1)	France	(1)	Germany	(2)
Hungary	(1)	Ireland	(1)	Israel	(1)	Italy	(1)
Japan	(1)	Korea	(1)	Latvia	(2)	Lithuania	(1)
The Netherlands	(1)	New Zealand	(1)	Norway	(1)	Poland	(1)
Slovak Repub.	(1)	Slovenia	(1)	South Africa	(3)	Spain	(1)
Sweden	(1)	Switzerland	(1)	Tunisia	(2)	United Kingdom	(1)
U.S.A.	(2)	Zimbabwe	(1)				

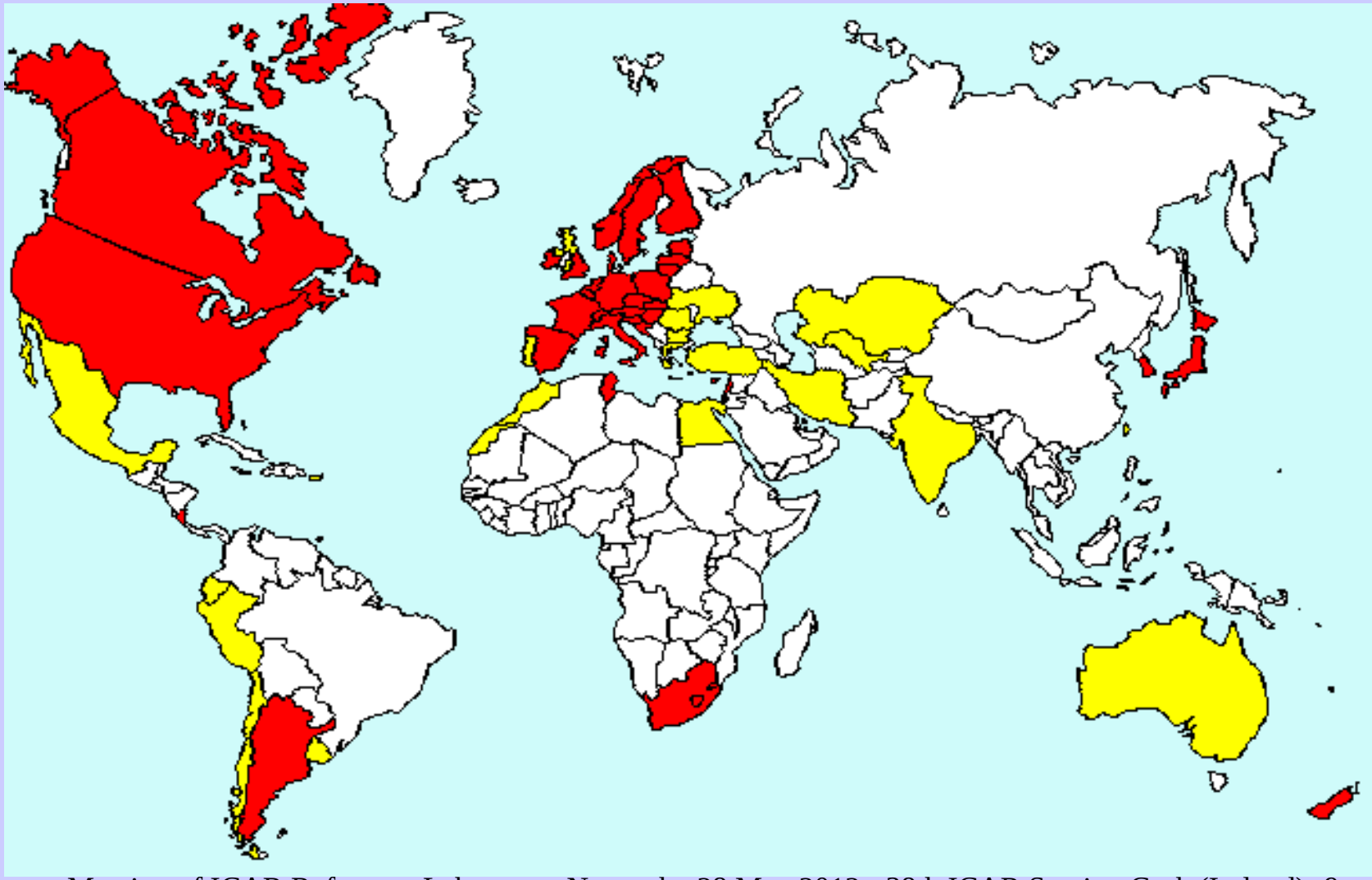
(n) : number of member(s)

among which : 41 members for cow
19 members for goat
16 members for sheep

3 new members in 2011 : Croatia, Germany, Japan

ICAR Reference Laboratory Network

Geographical distribution in 2011-2012



Evolution of the composition and national roles from 1998 to 2011

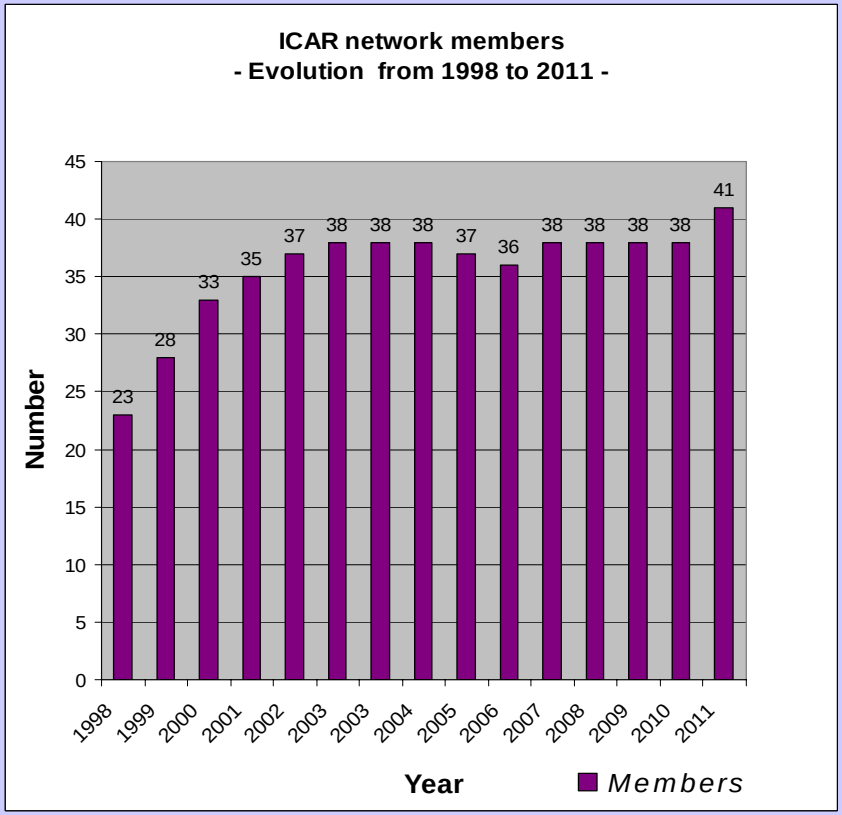
YEAR	NRTO	RMS	MLCC	TLT	IAM	EAMI	RAM	NRCA	DHIA	PAYMENT	Other anal.	Members
1998	15	16	13	13	16	1	11	2	2	1	1	23
1999	17	18	17	14	17	1	12	2	3	1	1	28
2000	16	21	19	15	19	1	13	3	5	1	1	33
2001	19	22	19	18	21	3	15	5	6	2	1	35
2002	20	23	19	19	23	8	15	8	11	5	1	37
2003	21	26	19	21	24	12	16	9	14	7	3	38
2003	21	26	19	21	24	12	16	9	14	7	3	38
2004	25	26	18	20	24	14	16	9	16	9	3	38
2005	24	24	17	19	22	13	15	10	15	8	3	37
2006	24	24	17	20	22	14	15	10	15	10	3	36
2007	22	24	18	22	24	17	17	13	17	13	3	38
2008	23	24	18	22	24	17	17	13	17	13	3	38
2009	23	24	18	22	24	17	17	13	17	13	3	38
2010	23	25	19	21	23	17	17	12	18	14	3	38
2011	25	27	21	24	26	19	19	14	19	14	4	41

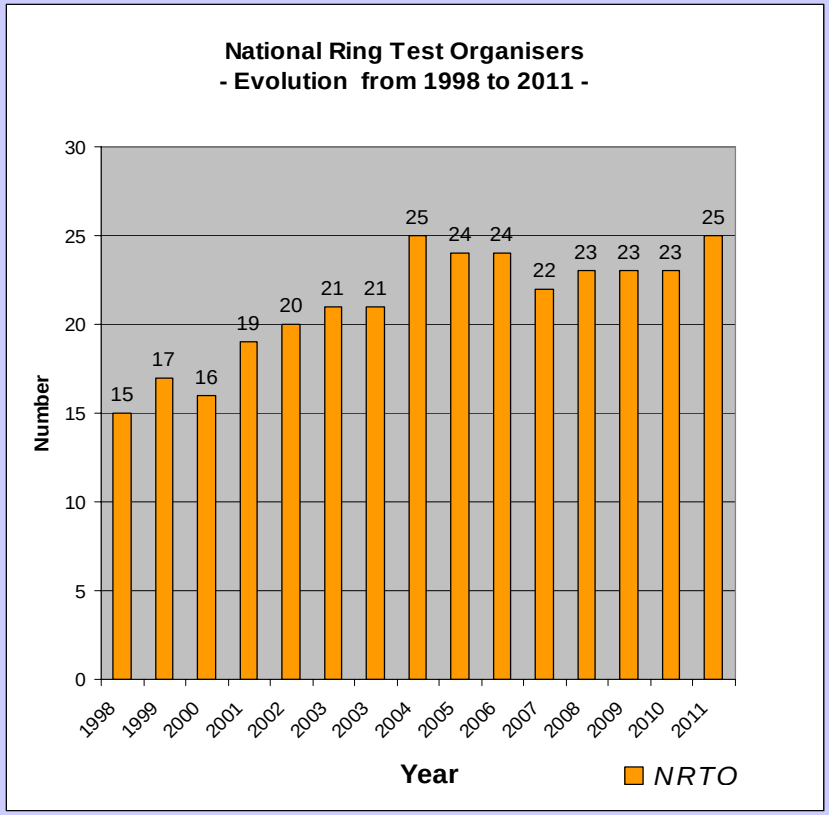
NRTO = National Ring Test Organiser
RMS = Reference Material Supplier
MLCC = Master Laboratory for Centralised Calibration
TLT = Training in Laboratory Techniques
IAM = Information on Analytical Methods
EAMI = Evaluation of Analytical Methods/Instruments
RAM = Research on Analytical Methods
NRCA = National Regulatory Control of Analyses
DHIA = Dairy Herd Improvement Analyses
Membership = Officially nominated by ICAR National Committees
Payment = Analyses for milk payment

Evolution of the proportions of national roles from 1998 to 2011

YEAR	NRTO	RMS	MLCC	TLT	IAM	EAMI	RAM	NRCA	DHIA	PAYMENT	Other anal.	Members
1998	68	73	59	59	73	5	50	9	9	5	5	100
1999	63	67	63	52	63	4	44	7	11	4	4	100
2000	48	64	58	45	58	3	39	9	15	3	3	100
2001	54	63	54	51	60	9	43	14	17	6	3	100
2002	54	62	51	51	62	22	41	22	30	14	3	100
2003	55	68	50	55	63	32	42	24	37	18	8	100
2004	66	68	47	53	63	37	42	24	42	24	8	100
2005	65	65	46	51	59	35	41	27	41	22	8	100
2006	67	67	47	56	61	39	42	28	42	28	8	100
2007	58	63	47	58	63	45	45	34	45	34	8	100
2008	61	63	47	58	63	45	45	34	45	34	8	100
2009	61	63	47	58	63	45	45	34	45	34	8	100
2010	61	66	50	55	61	45	45	32	47	37	8	100
2011	61	66	51	59	63	46	46	34	46	34	10	100

Evolution of membership and missions/activities from 1998 to 2011





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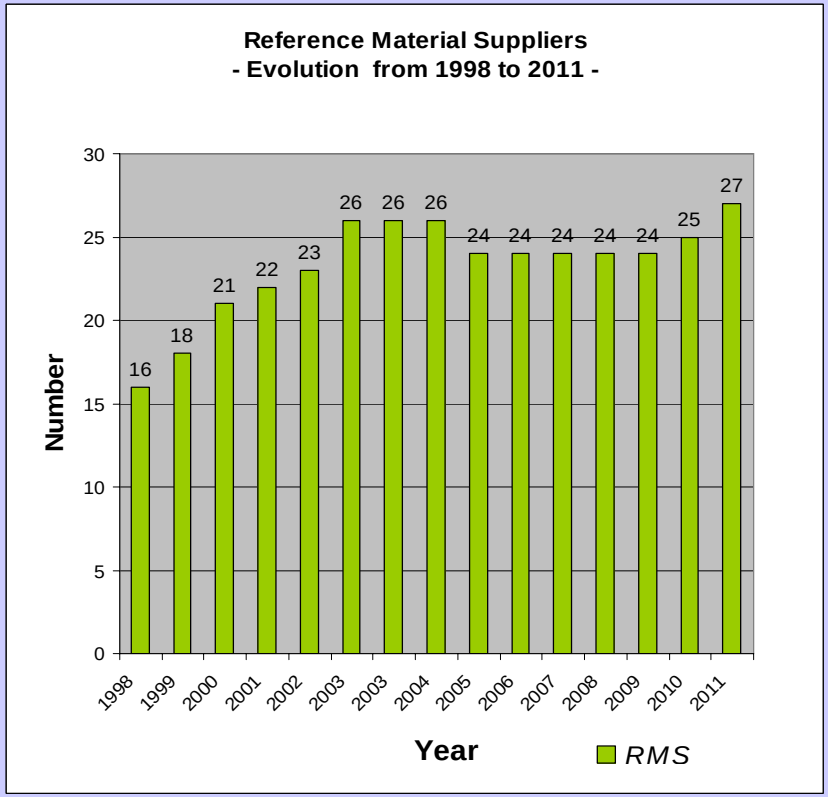

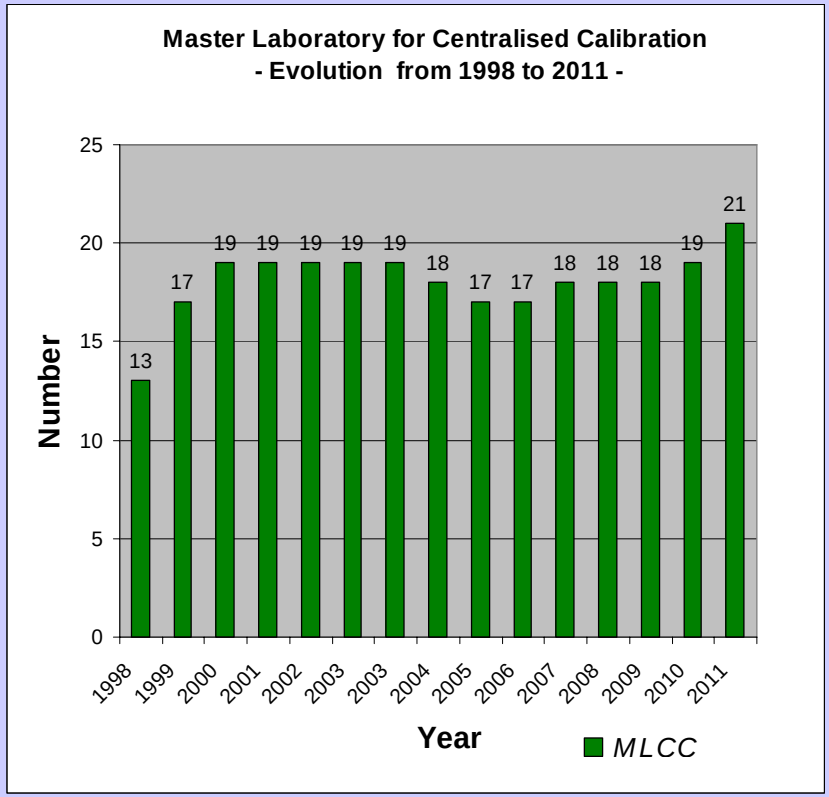

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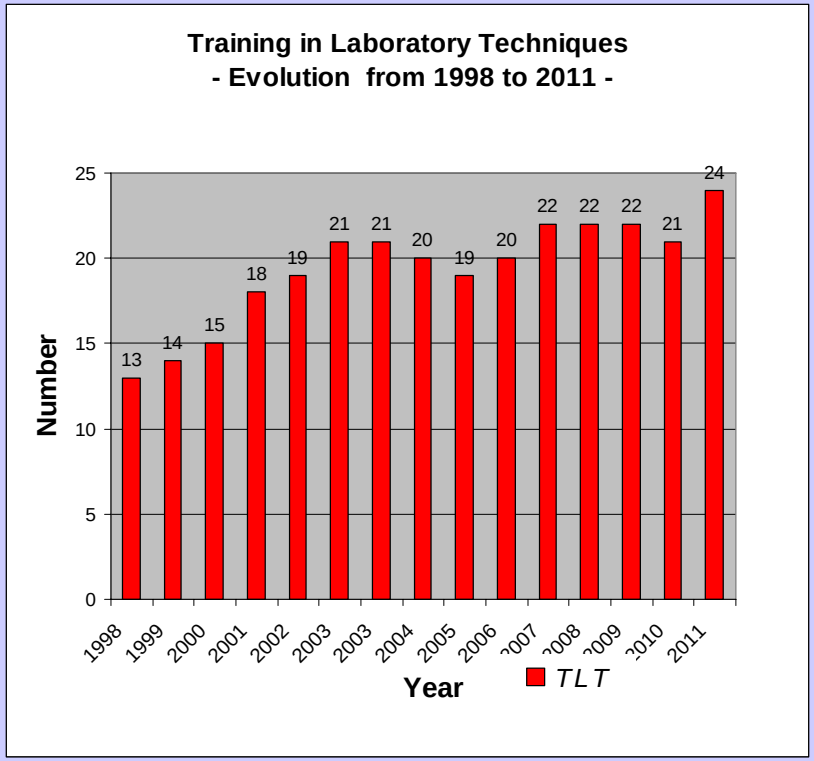

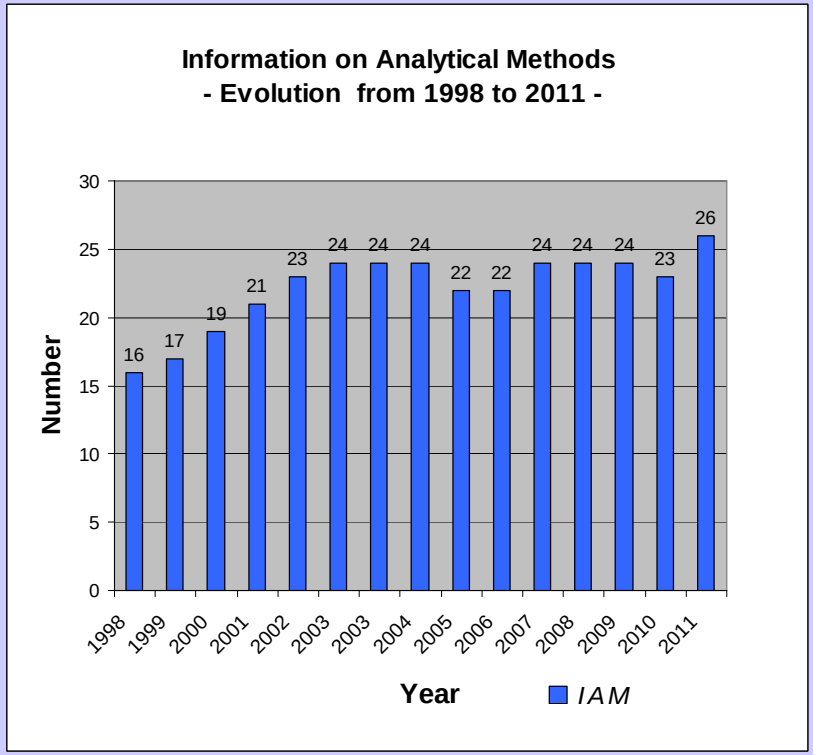

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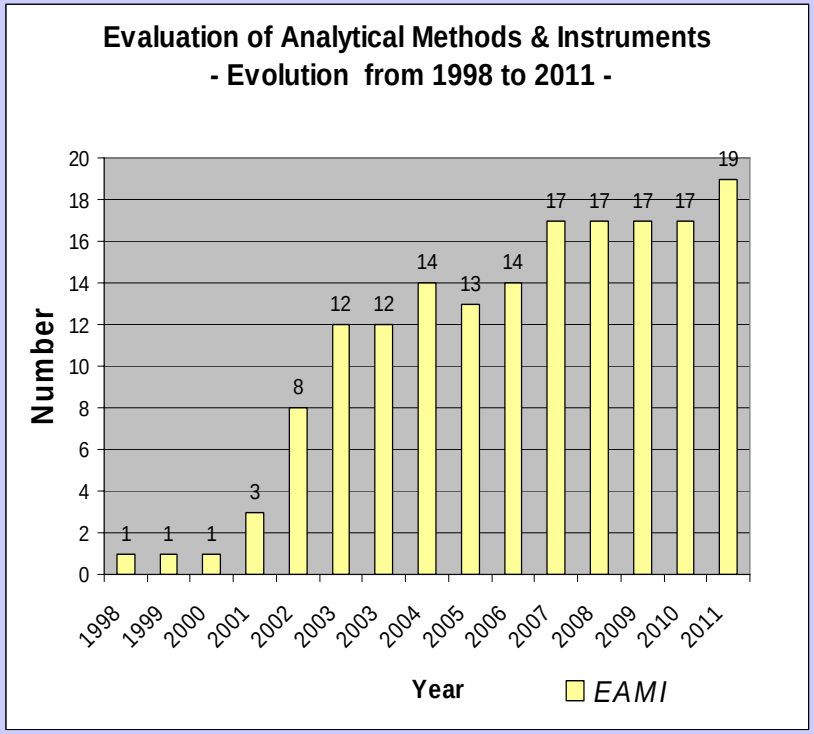
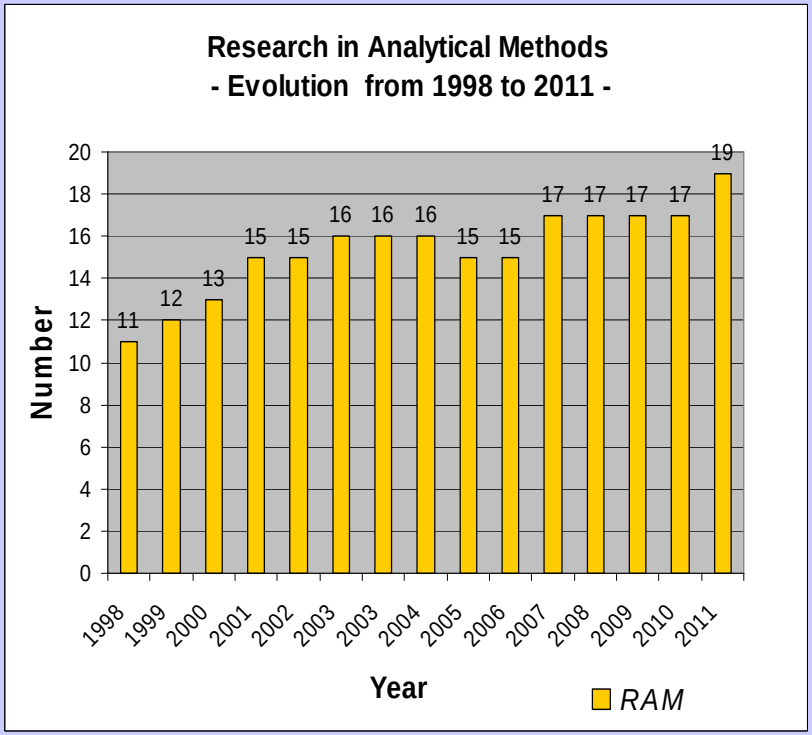
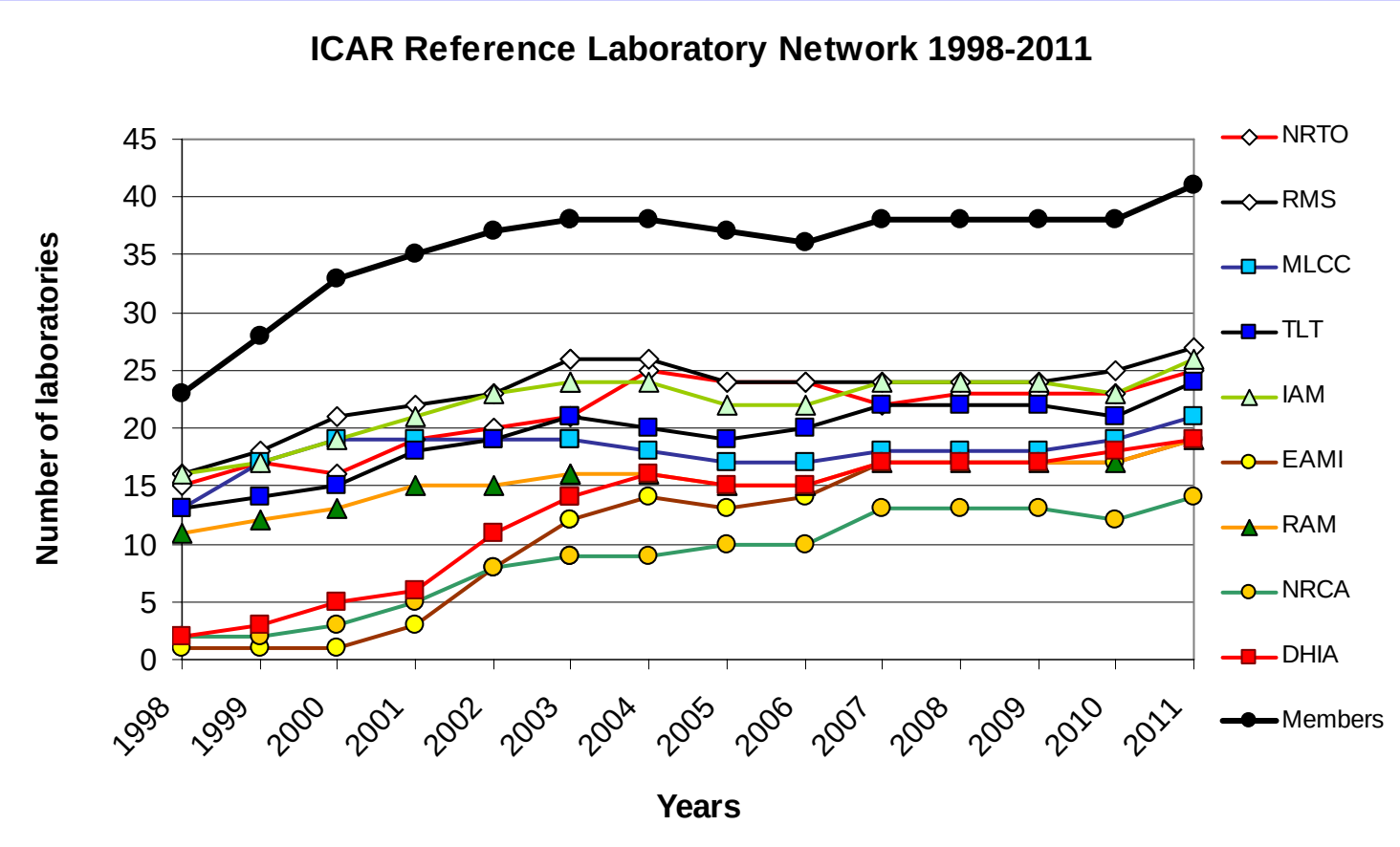
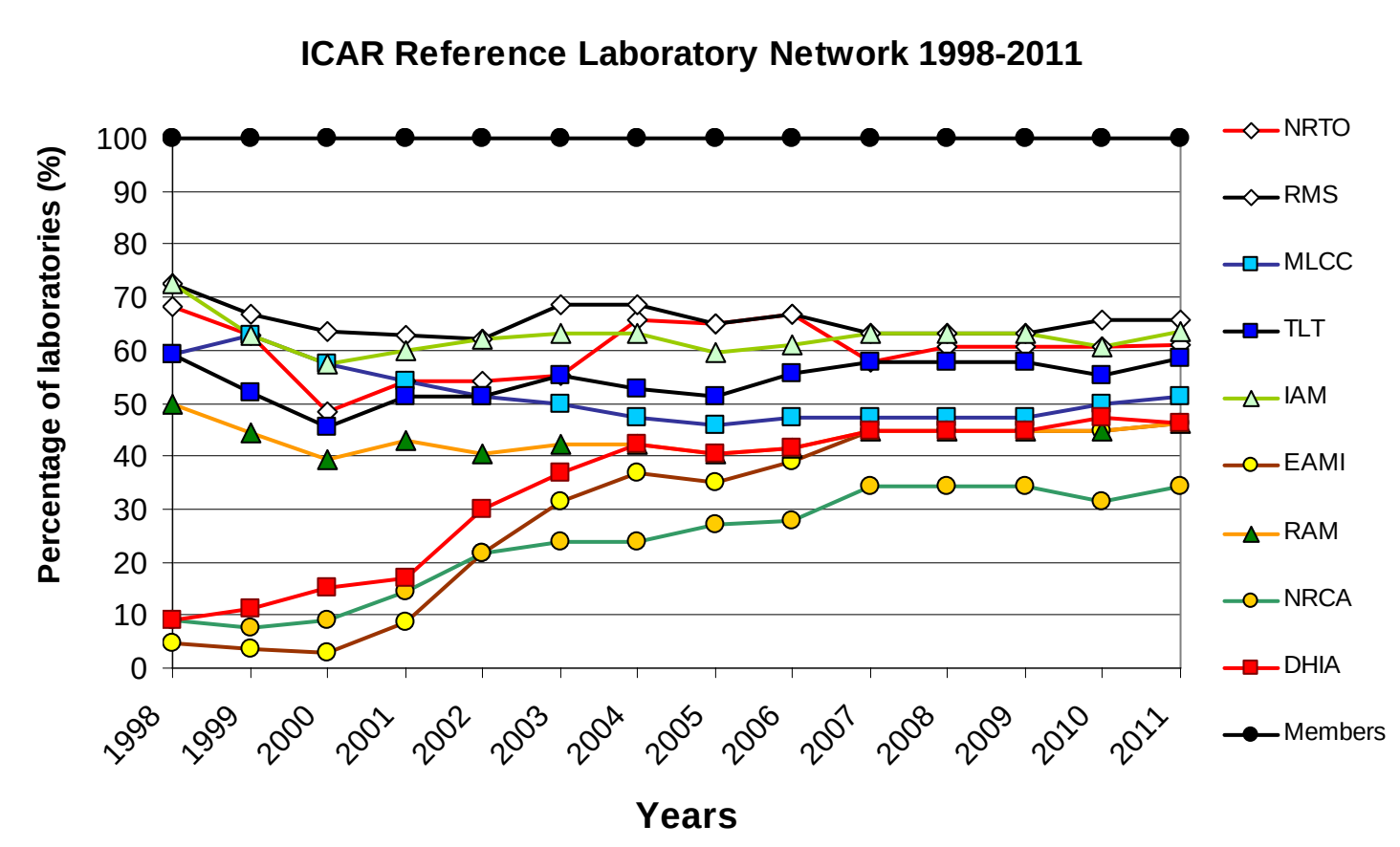




Evolution of membership and missions/activities - Number -



Evolution of membership and missions/activities - Percentage -



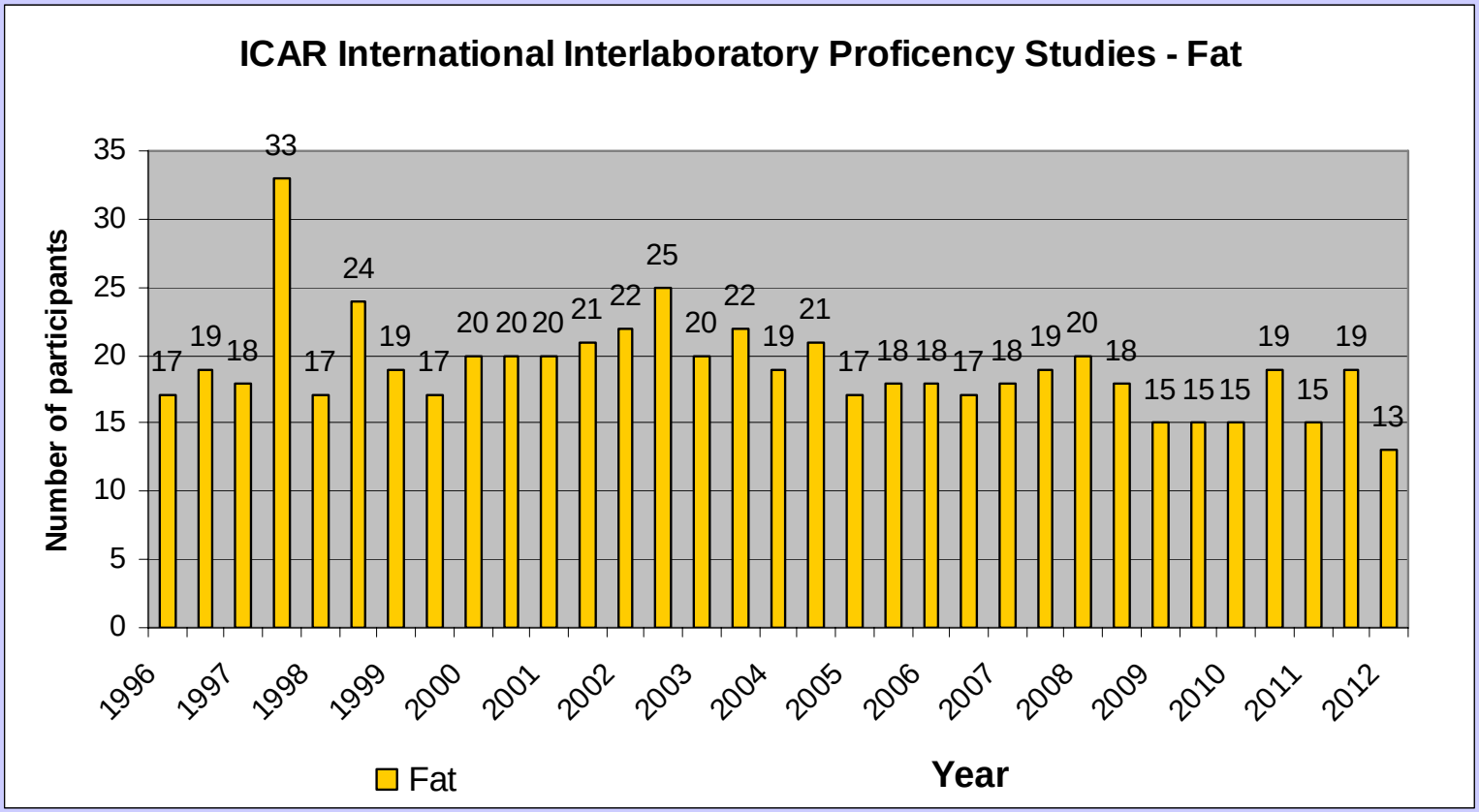
Coverage of eligibility criteria in 2011

Criteria N	Proportion	nr lab with nr	% lab with N	nr lab with at least N	% lab with at least N
8	100%	7	17%	7	17%
7	88%	5	12%	12	29%
6	75%	4	10%	16	39%
5	63%	3	7%	19	46%
4	50%	7	17%	26	63%
3	38%	3	7%	29	71%
2	25%	2	5%	31	76%
1	13%	4	10%	35	85%
0	0%	6	15%	41	100%

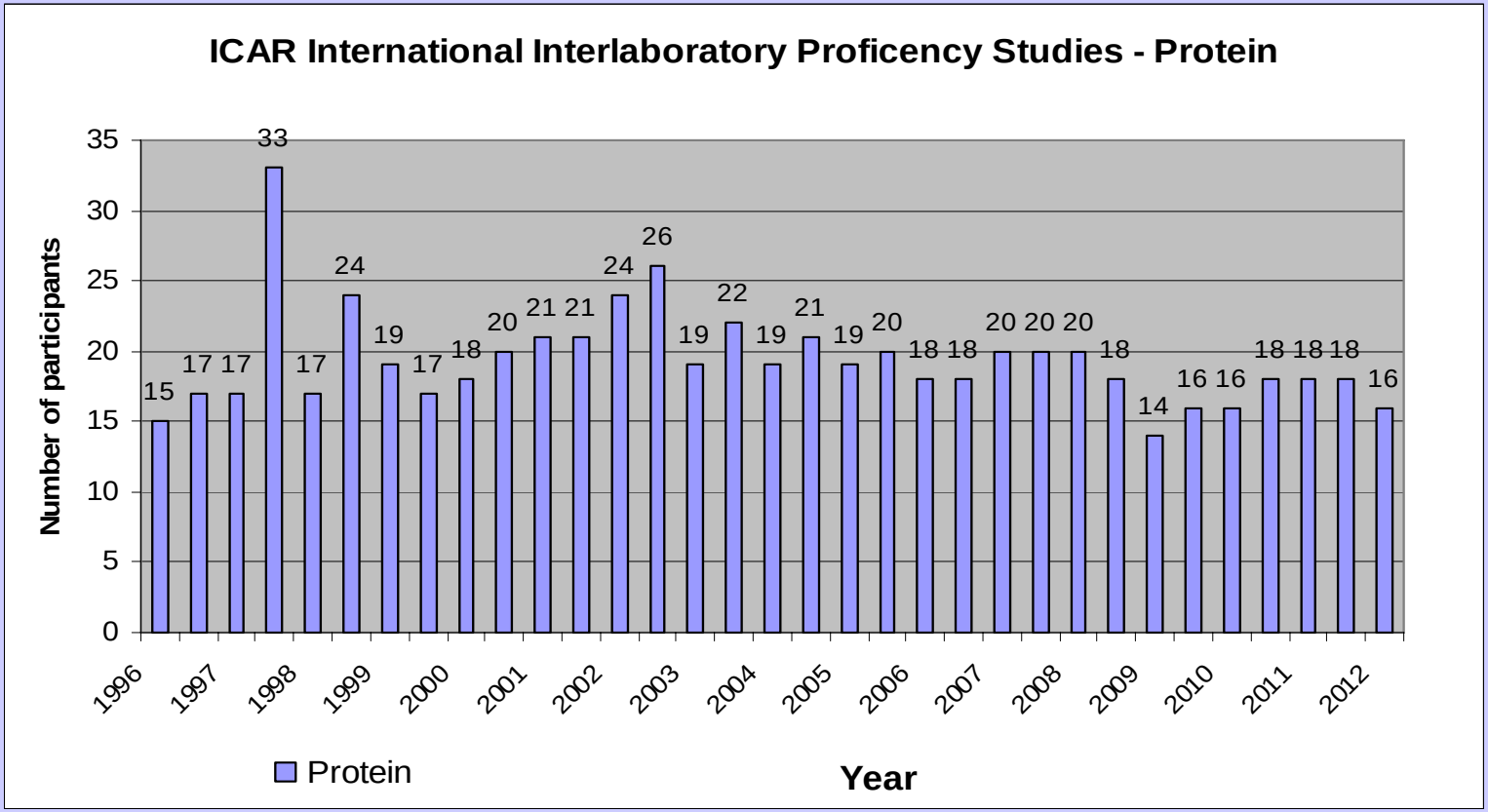
International interlaboratory proficiency studies

From 1996 :	International proficiency scheme organised by ICAR
Frequency :	twice a year (4 new PT rounds since Riga 2010)
Participants :	13 to 19 members of ICAR Ref Lab Network
Analytical methods :	- reference methods to calibrate routine methods for fat and protein - methods for lactose, urea somatic cell counting
Type of milk :	cow milk

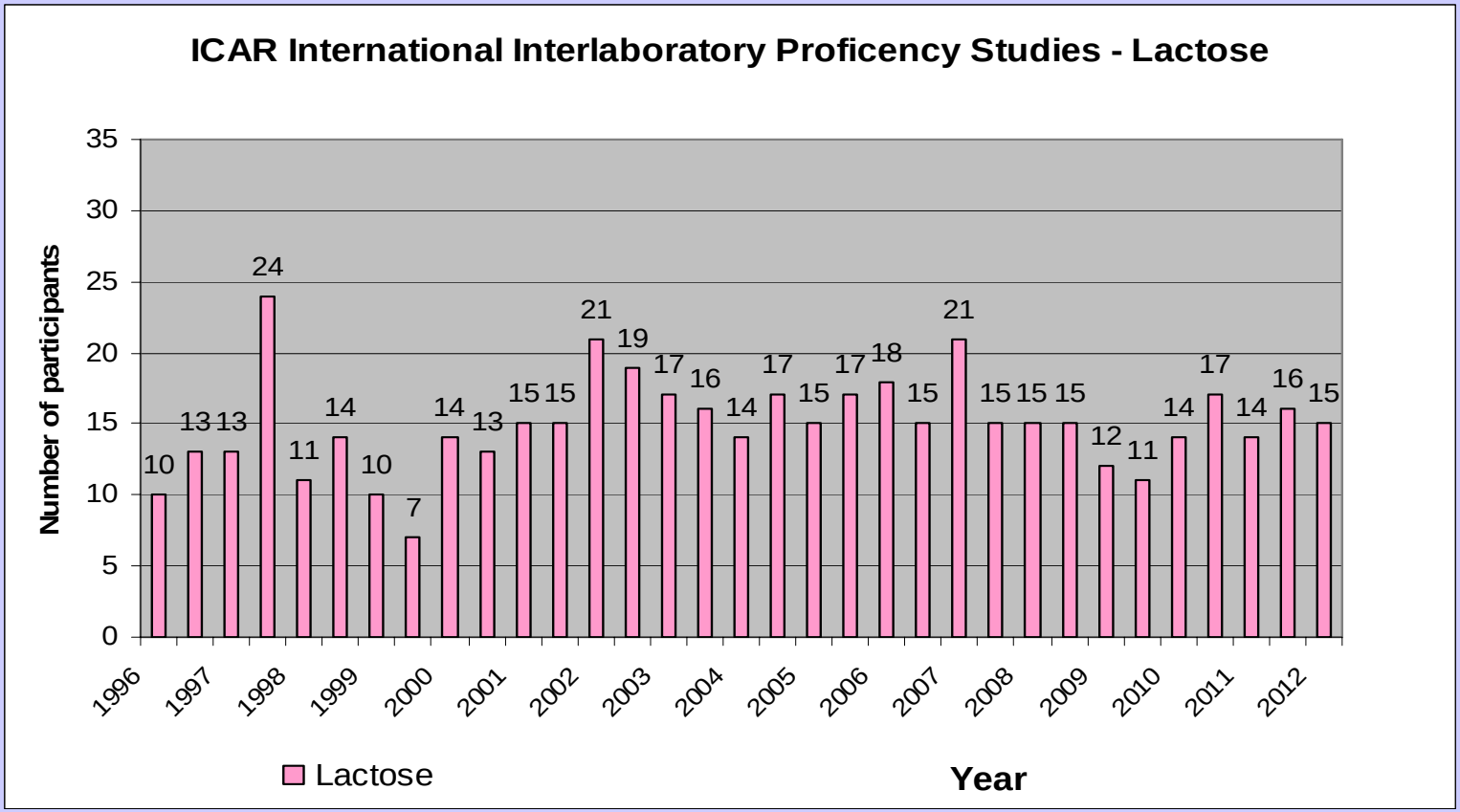
Participation in ICAR PTs - FAT



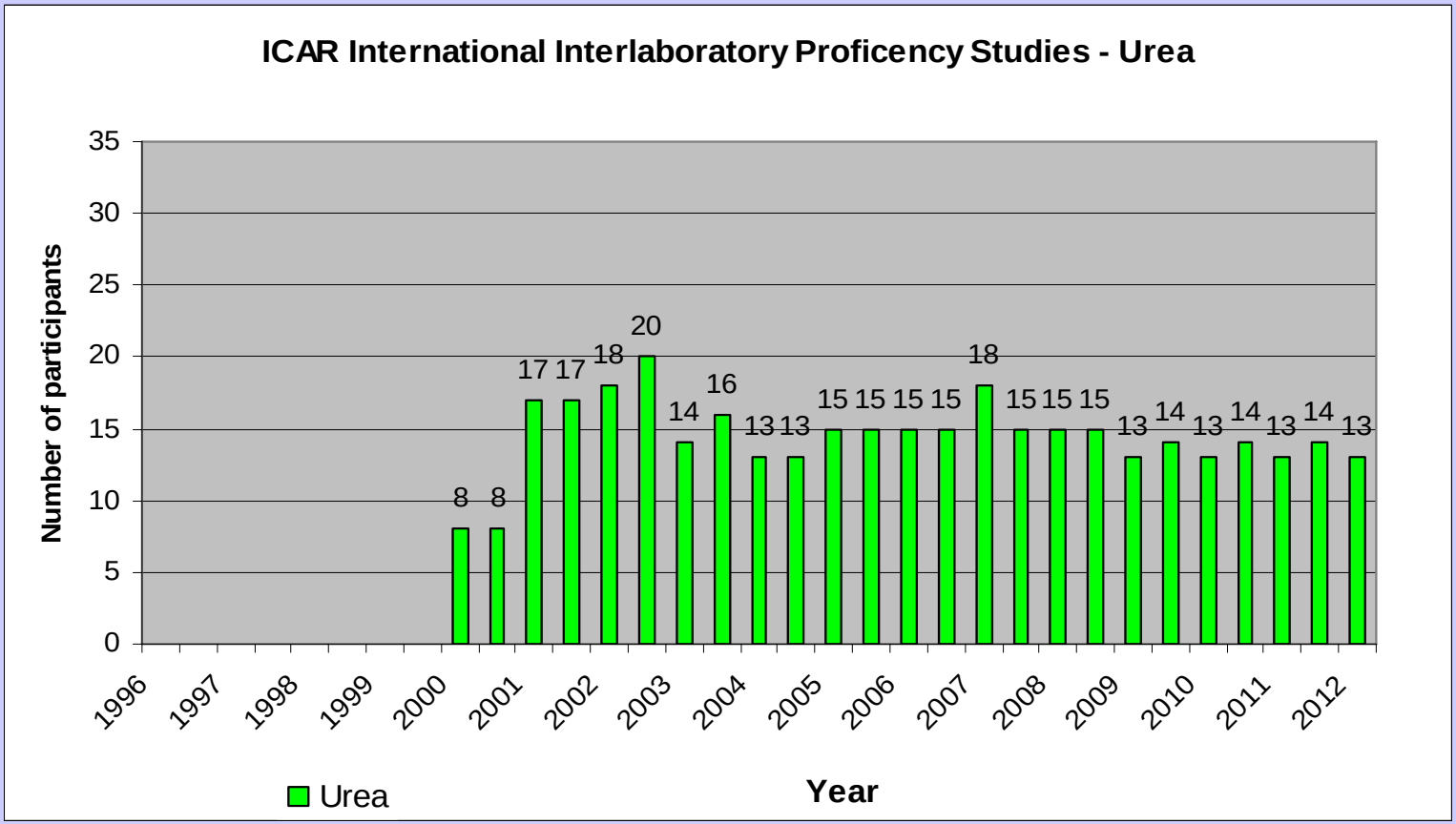
Participation in ICAR PTs - PROTEIN



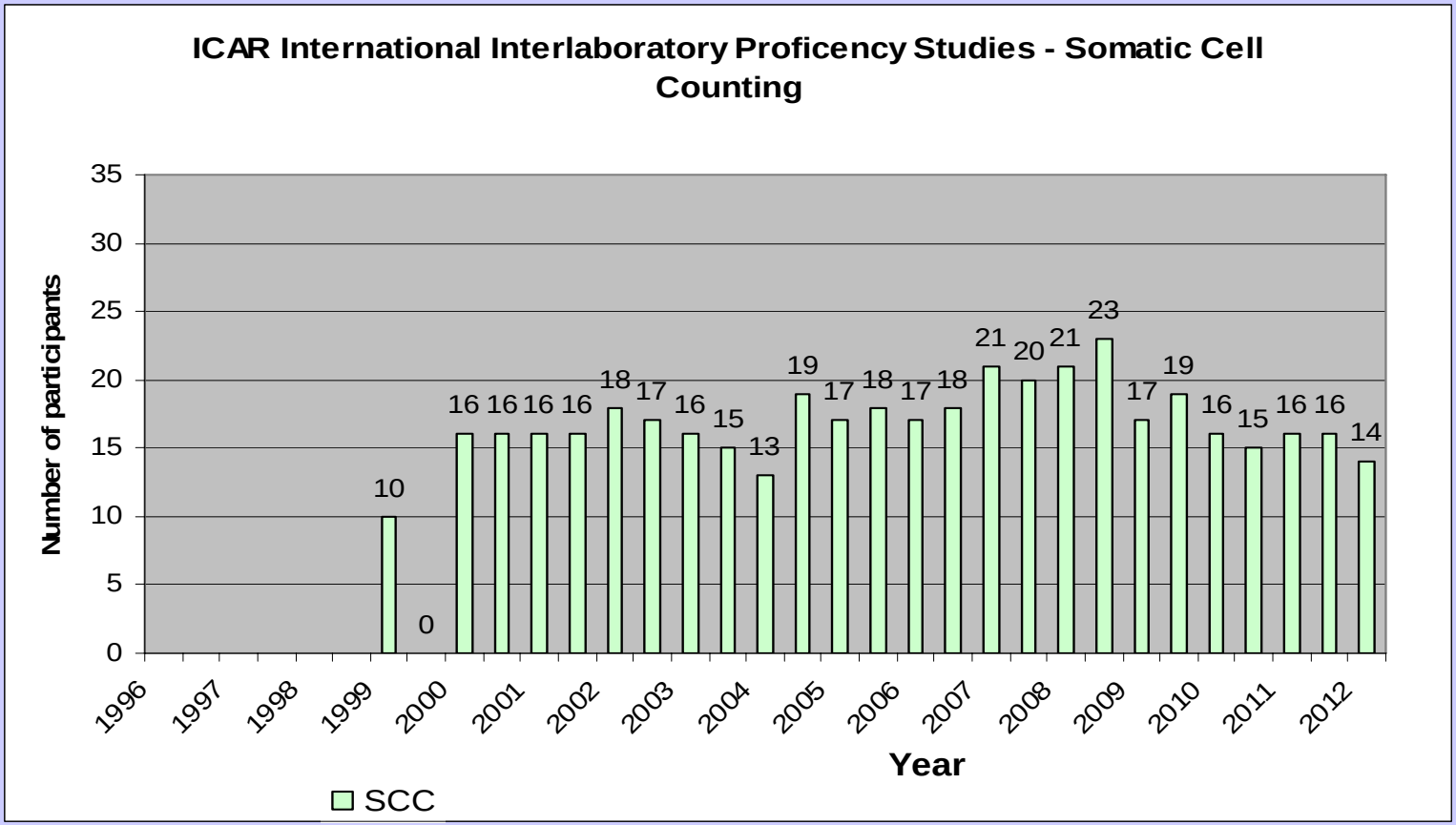
Participation in ICAR PTs - LACTOSE



Participation in ICAR PTs - UREA



Participation in ICAR PTs – Somatic Cell Counting



From Sousse 2004, Niagara Falls 2008, Riga 2010

Interlaboratory proficiency studies are promoted for

1- Measuring laboratory performance

2- Measuring result uncertainty

3- Comparing laboratories (assess equivalence)

4- Providing traceability to international reference

5- Qualifying/selecting reference/expert laboratories

6- Assessing/certifying reference materials

In order to built-up consistent reference systems nationally and internationally

CONCLUSION ON THE NETWORK IMPLEMENTATION

Nominations by national organisations :

- **Number :** 41 members

  3 new members in 2011 : Croatia, Germany, Japan

  Need to expand more widely for a worldwide recognition purpose with new ICAR members

  e.g. Latin America, Asia, Russia & CIS

- **Qualification :** Increase of mission numbers (eligibility criteria)

International Proficiency Testing schemes :

- Regular participation of about 50% of laboratory network members
- participation numbers close to average lab numbers meeting eligibility criteria

Thank You for your attention !