**Dairy Cattle Department
Extension Services
Ministry of Agriculture and Rural Development
State of Israel**

Practical Guidance For Monitoring And Managing Animal Welfare In Israeli Dairy Farms

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[1] Dairy Cattle Dep., Extension Services, Israeli Ministry of Agriculture

**[2] Israeli Herd Book, Israeli Cattle Breeders Association (ICBA)**

ICAR 2021

The Land of Milk and Honey...

Agenda
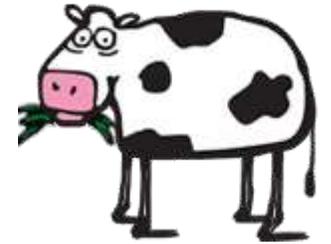
- "Educated Guess" Status

- The Challenge of Benchmarking Animal welfare

- Automatic Monitoring Highlights The Solution

- "Gold standard" Key Features for Cows' Wellbeing

"Educated Guess" Status

Assessments of animal's status to improve welfare of Israeli dairy farms are sometimes performed by:

- **State veterinary services** (survey purposes or public complains)

- **Private vets** (commercial marketing acts)

- "Manual" welfare assessment methods are **subjective, complex, time consuming and expensive**

- With **limited ability to reflect animal's "state of mind & body"** for a very limited time frame if at all.

The Challenge of Benchmarking Animal welfare

✓ **Monitoring different health conditions** of individual cows has been in use in Israeli dairy farms for many years:

  ✓ Milk conductivity and SCC for mastitis

  ✓ Milk fat to protein ratio for ketosis

  ✓ Activity, rumination and lying behavior for indigestion issues and gynecological status

A Health event – painful wounded nipple results in sharp changes in activity of an individual cow


SCR, 2018
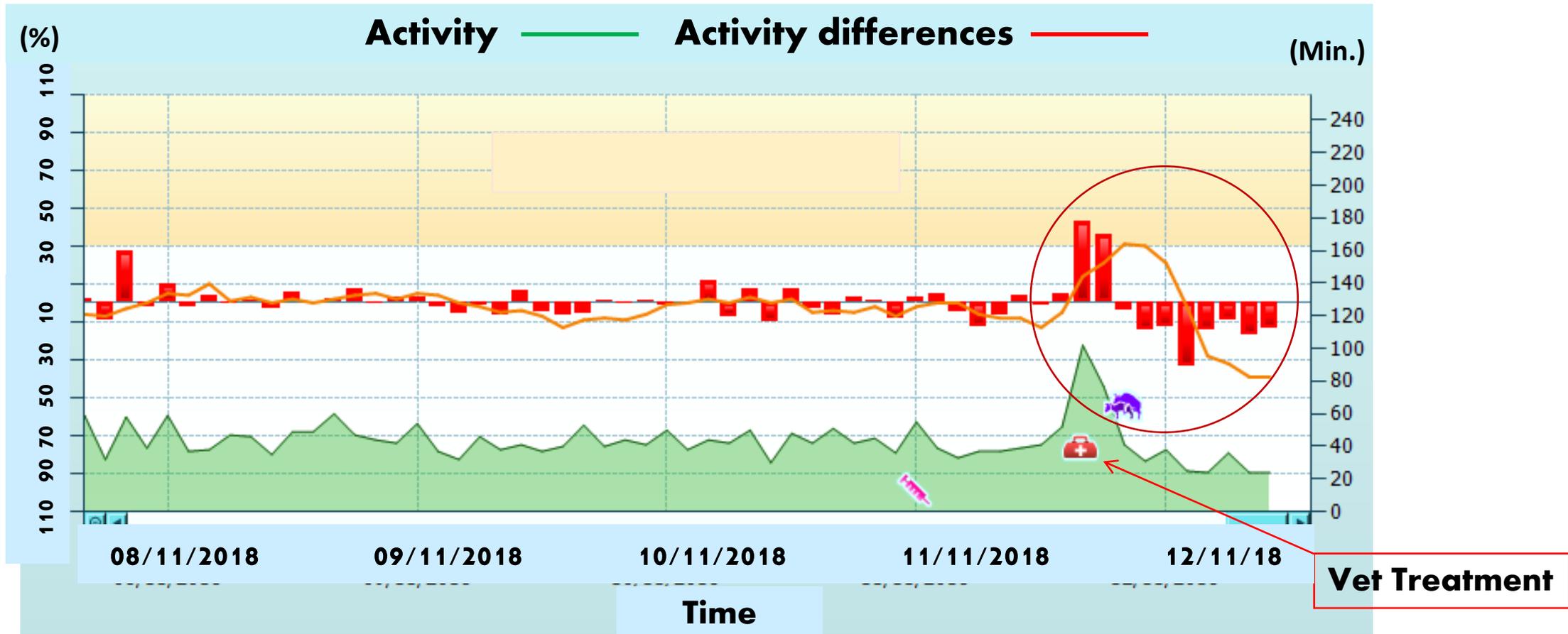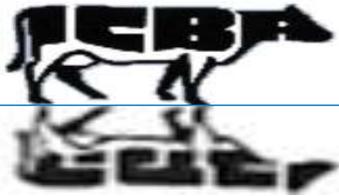
**Group's daily average Rest Time (Freestalls)
varies depending on bedding condition & stoking density
Daily Bedding management - upgrade and stabilize resting...**

After

Before

Days
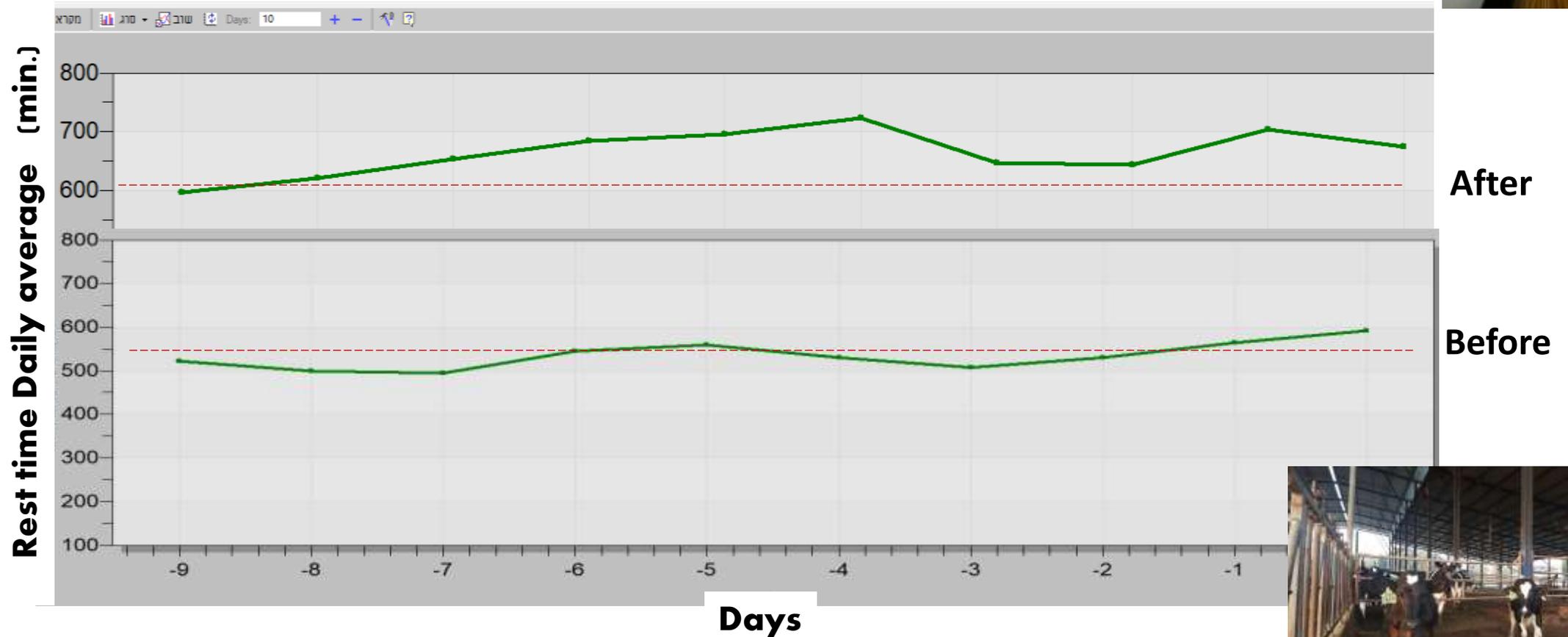
Automatic Monitoring Highlights The Solution

- Dairy farmers in Israel have a **national professional supporting environment**. >90% of the farms use ICBA's herd management software.

- Various applications are already implemented using **sensors which are on and around each cow in the herd**.

Udder Health Status by Monthly Milk Somatic Cell Count

Index	Healthy ▲	Recovered ●	New Mastitis ◆	Chronic/Subclinical ▼
No. of cows:	303	159	123	146
% of cows:	41	22	17	20
National top quarter average (%):	74	10	7	9

N.O.A, ICBA, 2018
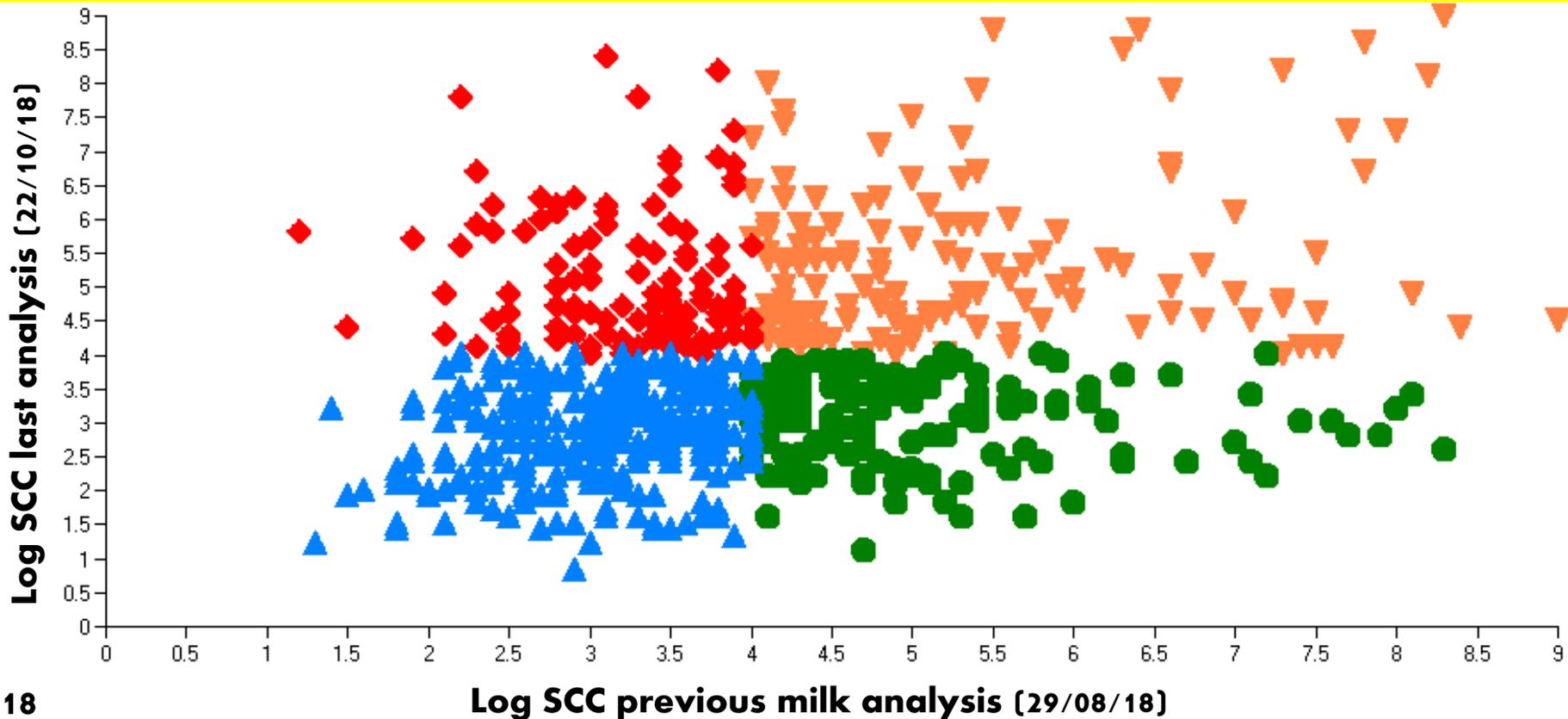
Monthly average - Stocking density – dry cows' groups

(m²)/cow
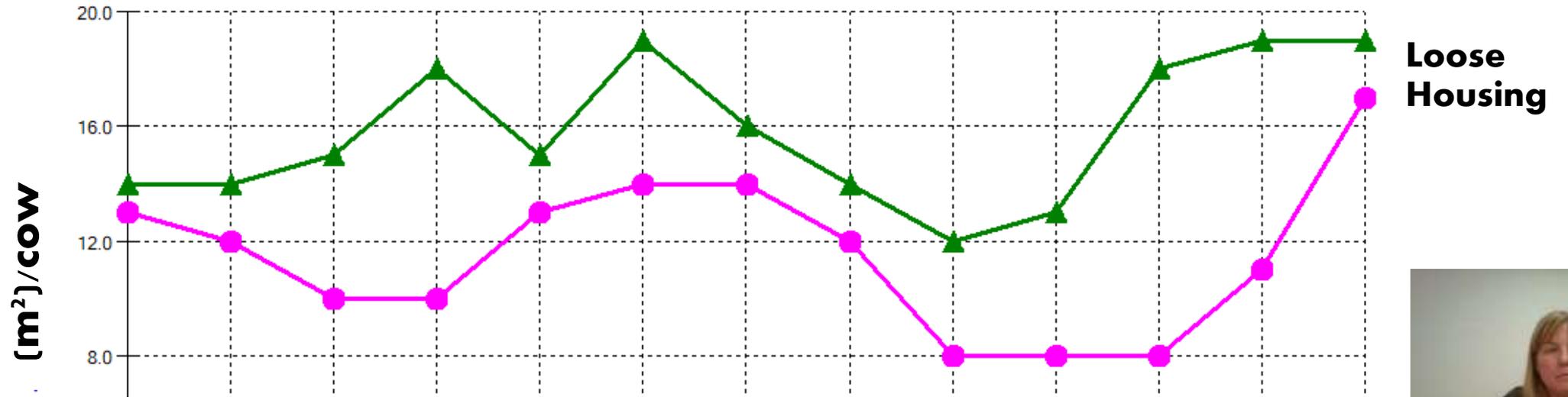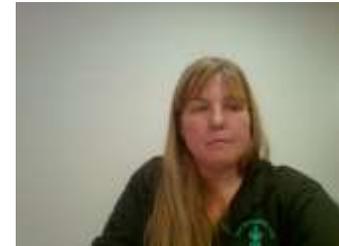
Loose Housing

Monthly average of Stocking density – milking cows' groups

(m²)/cow
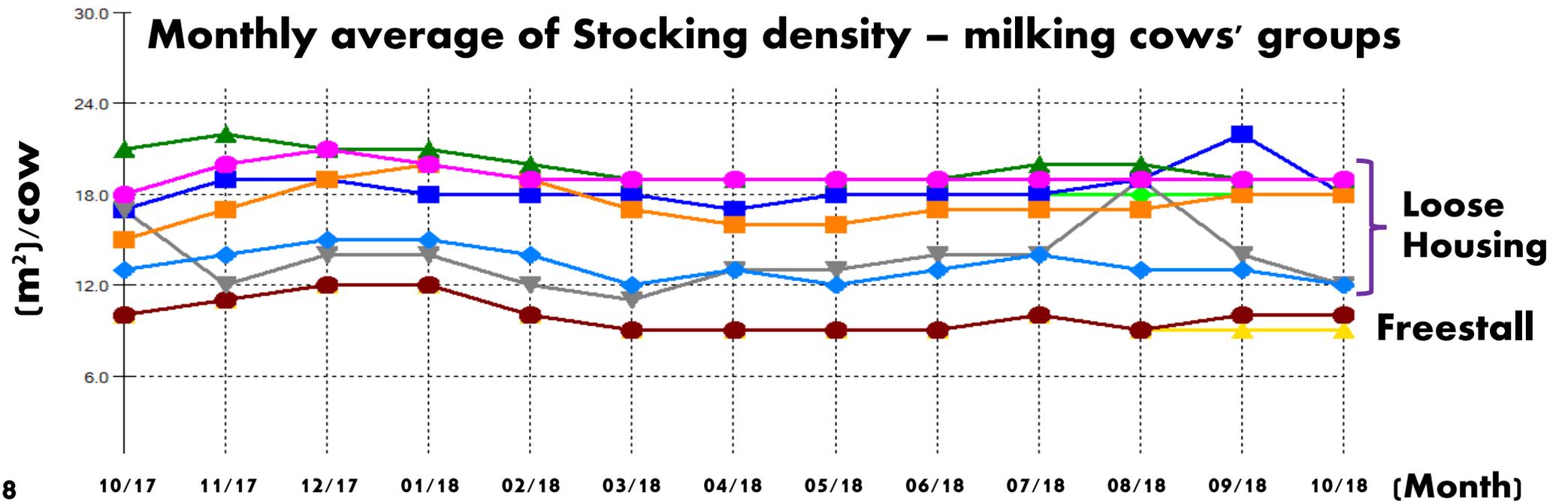
Loose Housing

Freestall

N.O.A, ICBA, 2018

10/17 11/17 12/17 01/18 02/18 03/18 04/18 05/18 06/18 07/18 08/18 09/18 10/18 (Month)

Daily group rumination pattern – Aim to be as stable as possible

SCR, 2018
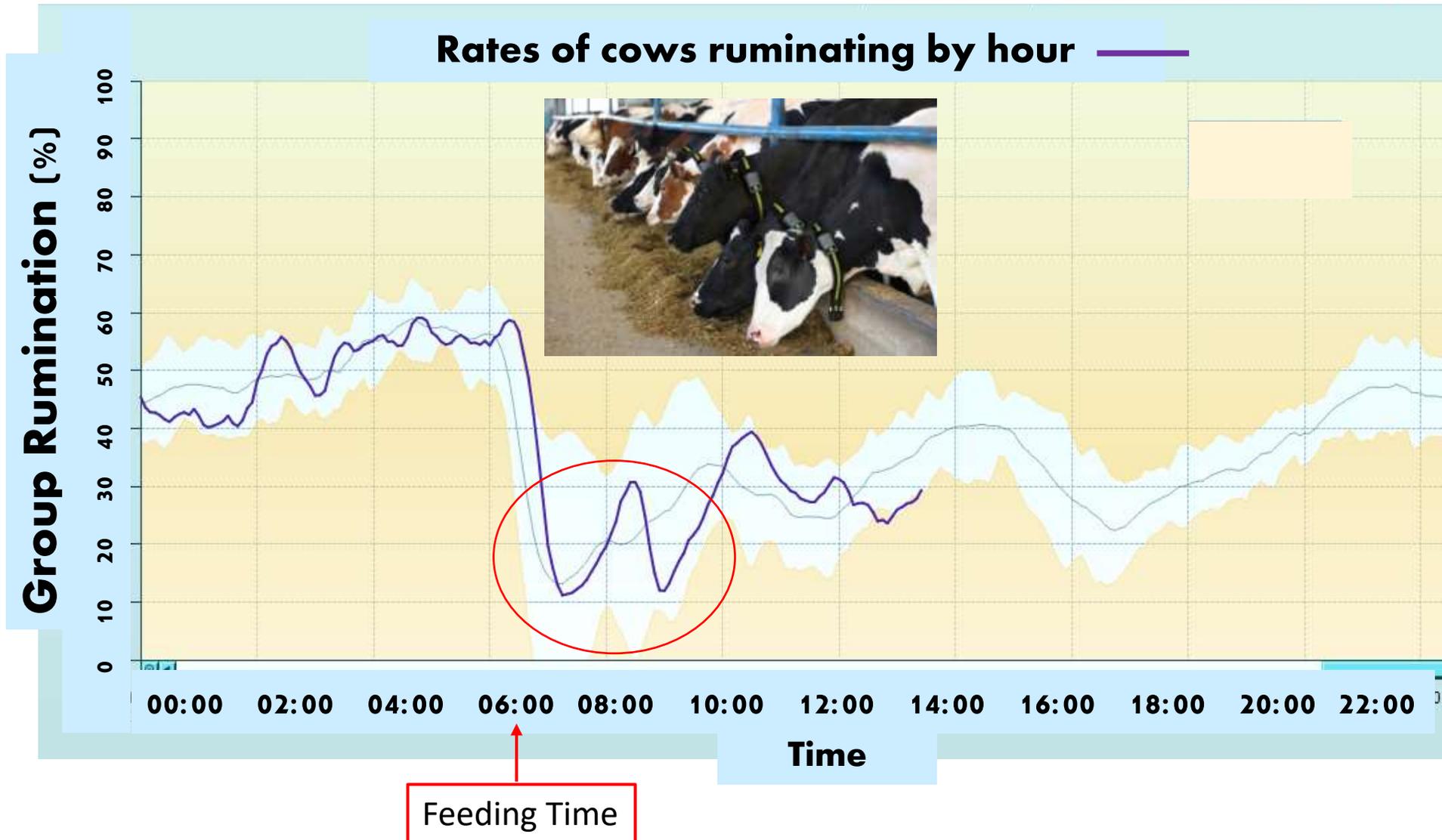
Panting monitoring of milking cows' group
>10% = Insufficient Cooling

SCR, 2017
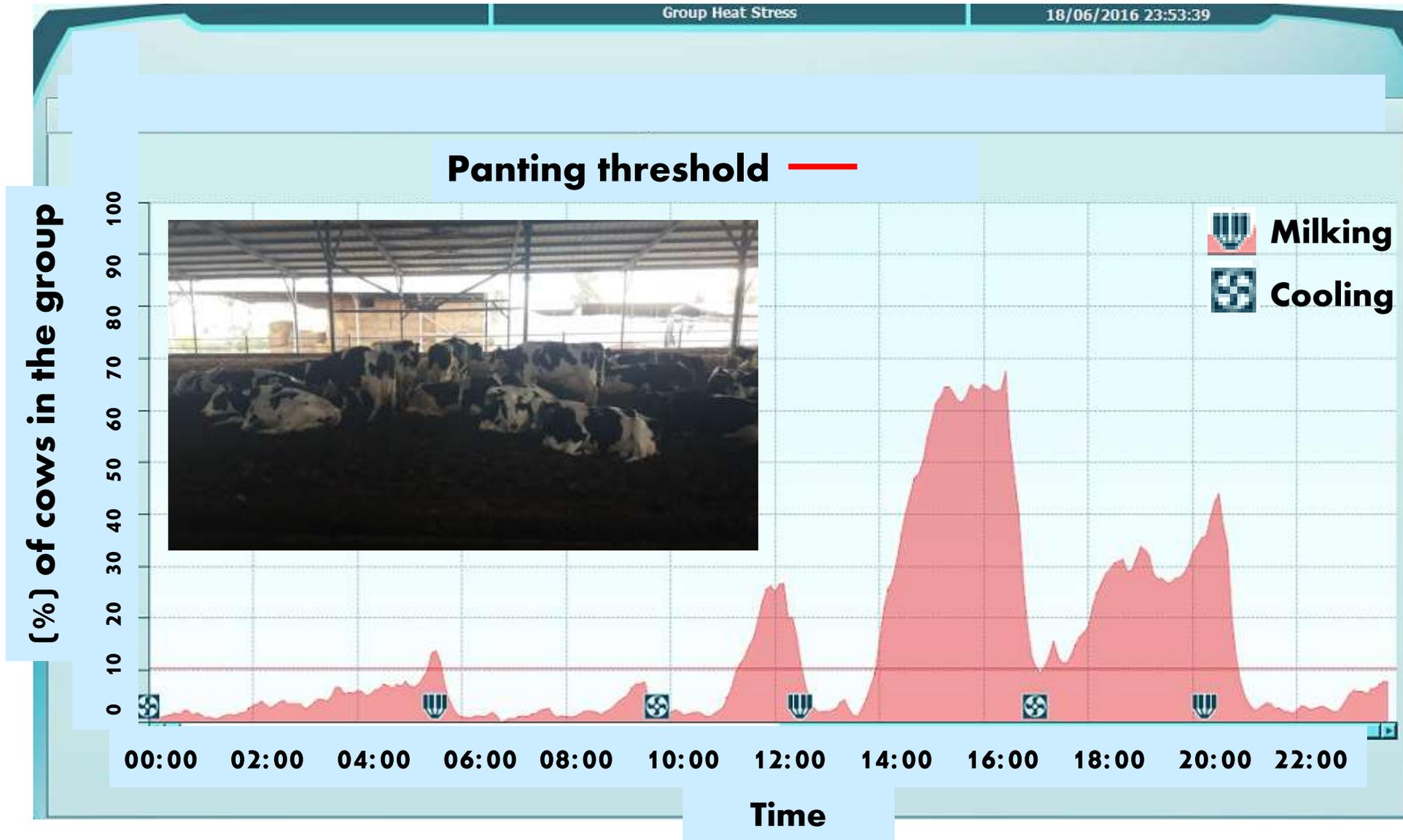
"Gold Standard" Key Features for Cows' Wellbeing

THE ISRAELI PURITY OF FARMS

Targets for Animal Welfare Indicators Available on Farm

Herd Health, Culling rates & Longevity

Fertility performance

Udder health & Milk quality

Feed Efficiency & Stoking Density

"Gold standard" Key Features for Cows' Wellbeing
Guidelines for the National Index for Welfare of Dairy herds (Israeli Holstein) *

Physiological indication (group daily average)	Values on farm (Target/ Range)	Behavioral indication (group daily average)	Values on farm (Target/ Range)
Stable Milk Fat to Protein Ratio	1-1.4	Stable Rumination (min.)	420-540 (>500)
Stable Milk Fat (%)	>3.5	Stable Daily Resting time (min.) Stable Daily Resting bout (no.) Stable Rest Event time (min.)	480-660 (>550) 6-12 50-90
Stable Milk Conductivity	weekly average variability (<2XSD)		
Milking Efficiency (Milk let-down 50% up to 2 min)	>70 (% of cows)	Panting (% of cows)	<10
(%) New mastitis incidence by SCC	< 7	Abnormal Group Activity weekly average (% of cows)	<10
Weight lose from calving (kg per month)	< 25	Aberrant Fertility performance weekly average (% of cows)	<10
Abnormal feed intake (kg)	weekly average variability (<2XSD)	Abnormal feed intake weekly average (% of cows)	<10

Summary:

➤ Cows welfare issues impact dairy farm profit and damage public opinion

➤ Healthy and relaxed animals will invest their most to ensure fertility and production according to their genetic potential

➤ Welfare status monitoring by global standards allows for evidence-based management decisions, resulting in better production, breeding and animal care (Best Practice Standard)

Animal welfare monitoring based on global standards are an important contribution to the efforts done to encourage the strive for efficient circular and sustainable food production

* The value ranges and thresholds defined in this model are a result of analyzing aggregated farm data with Israeli herd book. Further inputs include experience of working with the data by dairy farmers and professionals of sensor manufacturers. The model values are work in progress and some will continue evolving as cows' welfare in the farms applying the model improves.

Thanks!

Many thanks to my partners in ICBA and all contributors for establishing the Israeli purity of farms standard

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Discussion…