

# Using Total Plasma Protein to Predict FPT

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# Calf Research Unit

- Nutritional and Immunity Research
- Calves are 3-5 days old
- Shipped from Iowa and Wisconsin
- Overall mortality 0.5%



# Introduction

- Calves are blood sampled upon arrival via jugular venipuncture
- Indicator of immune status of calves used in our studies



# Blood Analysis

Blood samples are analyzed for:

- Immunoglobulin G (by turbidimetric immunoassay)
- Hematocrit
- Total Plasma Protein (by refractometer)



# Objectives

- Is there a relationship between total protein and IgG
- Determine whether hematocrit (degree of dehydration) has any effect on the relationship between TP and IgG
- Determine whether the time of year or the experiment affects the relationship between TP and IgG

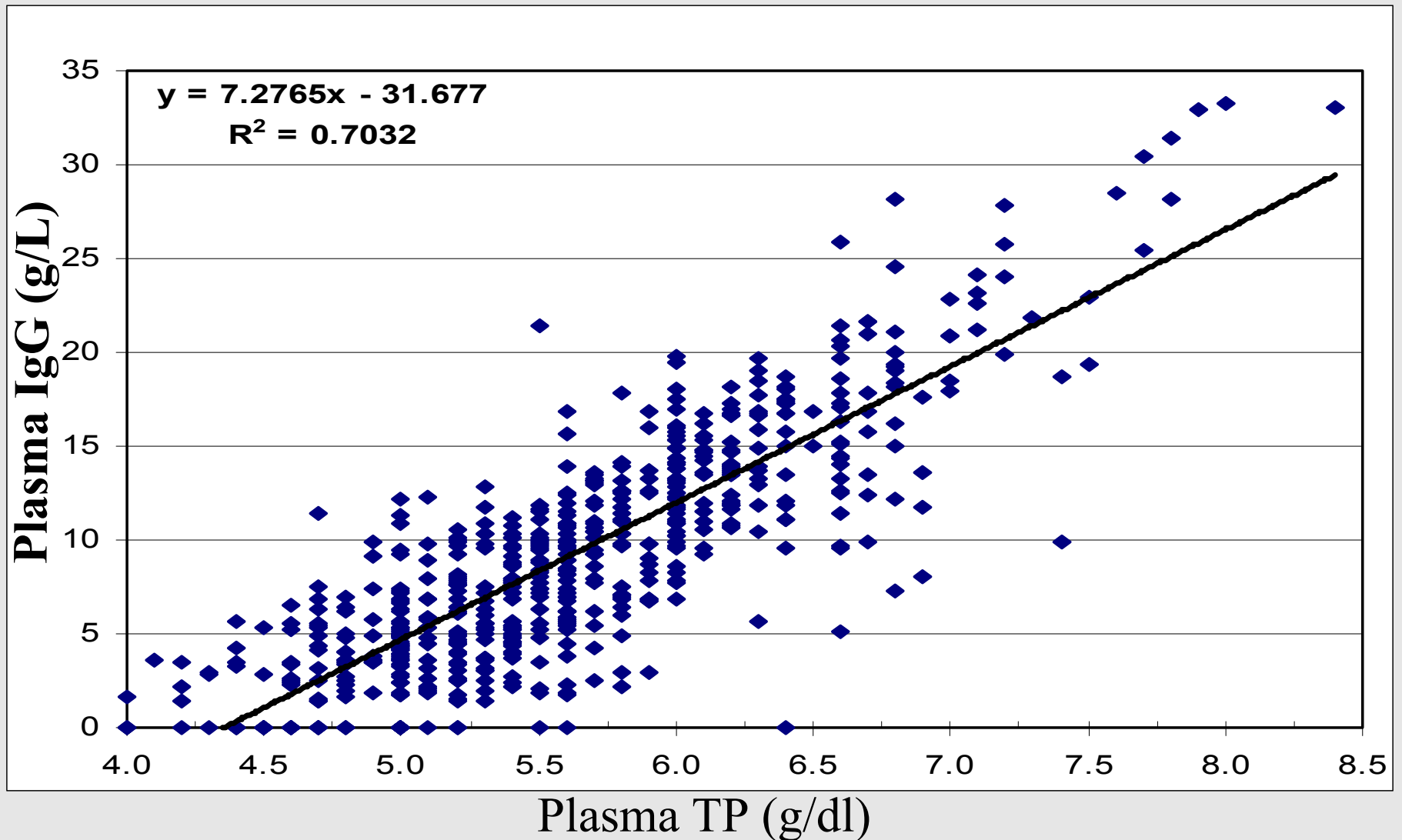
# Results

	<b>Hematocrit</b> %	<b>TP</b> g/dl	<b>IgG</b> g/L
<b>Average</b>	33.7	5.64	9.35
<b>Min</b>	17.0	4.00	0.00
<b>Max</b>	58.0	8.40	33.30
<b>SD</b>	6.8	0.71	6.13

# Relationship Between TP, HCT, and IgG

	Correlation $r =$	P-value
HCT/TP	0.01	NS (p=0.78)
HCT/IgG	-0.01	NS (p=0.75)
TP/IgG	0.84	0.001

# Plasma IgG and TP

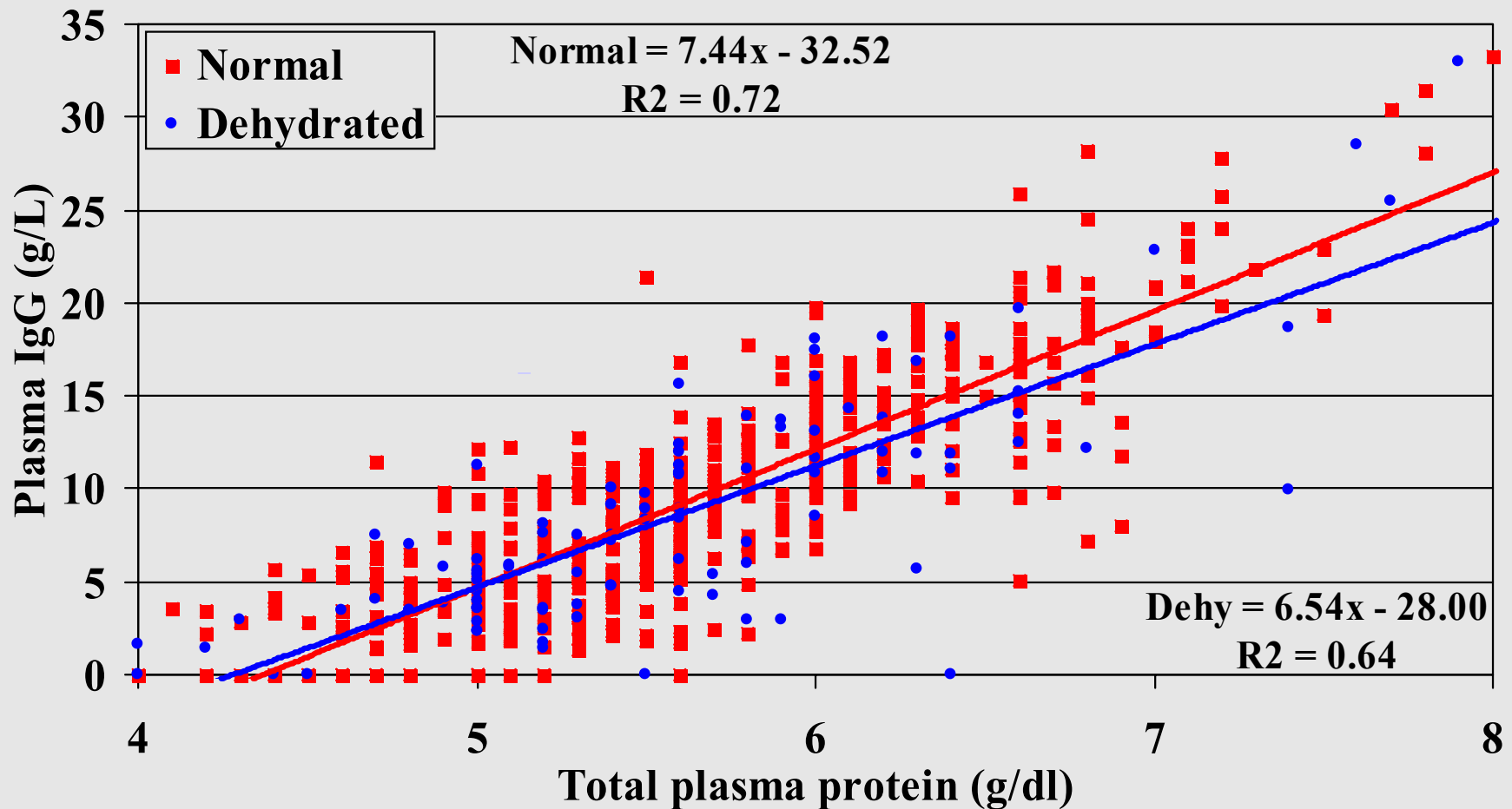




# Relationship Between TP and IgG

	< 10 g/dl	≥ 10 g/dl	
< 5.5	275	26	301 (48%)
≥ 5.5	90	236	326 (52%)
	365 (58%)	262 (42%)	627

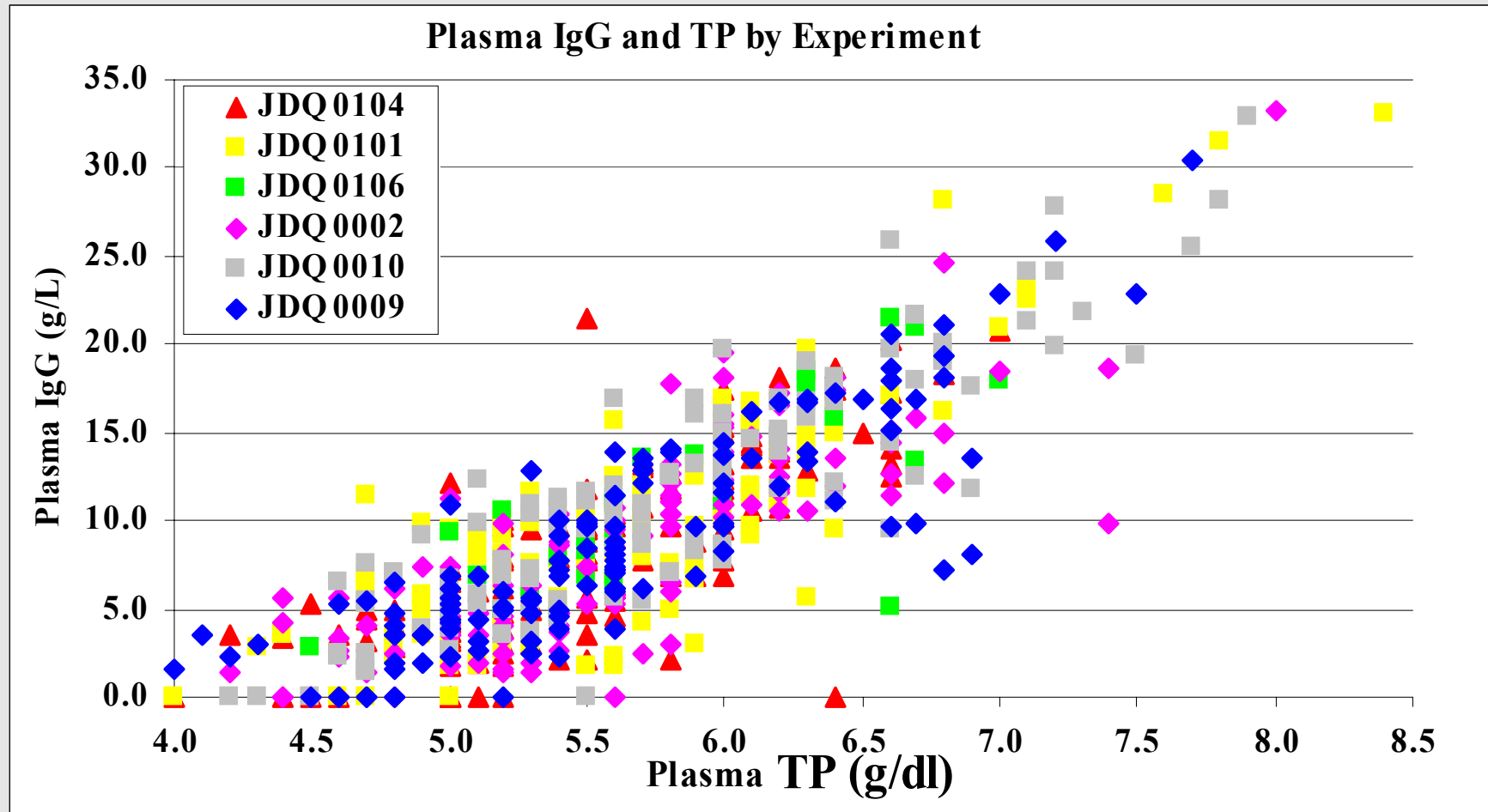
# Results – Does Dehydration (HCT) Affect TP and IgG



# Does Season Affect TP

<b>Experiment</b>	<b># of Calves</b>	<b>Run Dates</b>
JDQ0002	120	3/4/00-5/6/00
JDQ0009	120	8/11/00-10/12/00
JDQ0010	120	10/20/00-12/7/00
JDQ0101	120	3/23/01-5/31/01
JDQ0104	120	6/29/01-9/6/01
JDQ0106	28	9/14/01-11/30/01

# Plasma TP and IgG by Experiment



# Recommendations



- Use refractometer as an on farm tool to test for FPT
- Be aware that if you are using 5.5 there is still an incidence of false positives (4.1%) and false negatives (14.4%)