

**DAIRY MANAGEMENT SYSTEM USER MANUAL
FOR
MAKUENI AND MUKULIMA DAIRY HUB UNDER FOOD FOR
ALL PROJECT KENYA (F4APK)**

**Submitted to:
Solidaridad Eastern and Central Africa Expertise Centre (SECAEC)**

Submitted by:
Dicova Africa Group Ltd
Machera Court Apt A4, Komo Lane, Wood Avenue
P.O Box 8957--00300, Nairobi – Kenya
Cell+254 713 762838
Email: info@dicovaafricaconsulting.com
or gsikumba@dicovaafricaconsulting.com
Website: <http://www.dicovaafricaconsulting.com>

Contact Person: Gregory Sikumba
Email: gsikumba@dicovaafricaconsulting.com

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Introduction

Dairy Management System (DMS) is a web based platform that can be hosted on a cloud environment and accessed by any internet enabled device from anywhere on the globe. DMS is a simple to use and customizable software that can be used by dairy co-operatives and milk processors alike to aid in their dairy operations. The primary objective of the DMS is to aid dairy cooperatives in the data collection, data input, data storage, processing and retrieval to provide information that helps Dairy Cooperatives to plan, track, control and re-plan the Dairy Cooperative activities, outputs and budgets. The Dairy management system (DMS) is already in use by several Dairy cooperatives across Kenya with optimal results reported thus far.

The Dairy management system was developed to address challenges of data collection, management, analysis and archiving at cooperative level. The system is designed to improve **efficiency, accountability and data security by digitization. How?** By customizing the system to fit the needs of various dairy cooperative business models to ensure quick uptake without disrupting the day to day operations of the cooperative. This customized system was first deployed at two dairy hubs under the Solidaridad food for all project, Makueni Dairy Cooperative (Makueni County) and Mkulima Bora Dairy Cooperative (Embu County).

System Capabilities;

- Collect and maintain farmers profiles
- Collect and maintain milk data (milk received, rejected, sold and processed).
- Collect and maintain financial records
- Produce farmer's statements.
- Calculate periodic payments to members (net payment journal).
- Extract periodic per collector production and total society production(produce receipt journal)
- Extract periodic per station inputs sales and total society inputs sales(credit sales journal)
- Extract periodic economic report (generate trial balance)
- Send weather and dairy production tips via SMS or Email

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P.O. Box 8957- 00300, Nairobi, Kenya.

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The Dairy Management System Design

The Dairy Management System is designed to work as a stand alone in the most remote and basic conditions, we have also extended its design architecture for it to have modern day components of cloud computing - this allows the Dairy Management System to answer the question of - *how can one use the system and access the information real time from anywhere?*

The dairy management system is designed to automate the entire dairy processing and production. The system runs on a secure database management system (DBMS) with a three-tiered user security protocol. The system has capabilities for a scheduled remote backup, failover and restore mechanism.

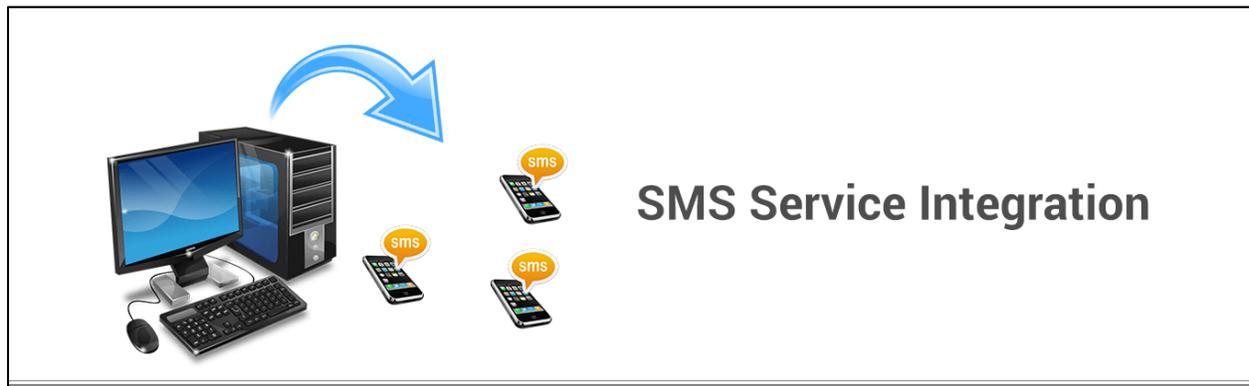
“The design has factored in aspects of secure access, data confidentiality, backups, controls and even policies”

Cloud Based System

A cooperative/farmer organization can use the cloud in a way that allows a cooperative/farmer organization to have multiple sites that allows data to be consolidated at a single point - all cloud based. In the even the cooperative does not have access to internet, we have the option of a creating a localhost server for the cooperative with strong passwords and authentication measures.

SMS Integration

The Dairy Management System has been designed to work with SMS across all Telkos. The integration is done such that alerts to farmers can be triggered to share information about the collected milk, quality, total value and dairy production tips.



Email Integration

The Dairy Management System has been designed to integrate with email. This allows for system administration and corporate communication integration. Members can receive their statements via email whereas management reports can be automatically generated and sent via email.

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com



Digital Weighing Scale and Printer

The Dairy Management System has been designed to integrate with an extensive range of Milk Weighing Scale in different customized specifications. These Milk Weighing Scales precision engineered to offer accurate measurement of milk in different quantities.

Application of GIS for Integrated Dairy cooperative and dairy farm Management

The System has capacity to integrate GIS-based methodological approach to the management and planning of dairy farms by cooperatives along with different units like fodder production, farm planning, feed planning and management and different farming system based on the integration of geo-morphological, agro-botanical and spatio-functional data about cultivated fodder land.

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The Dairy Management framework

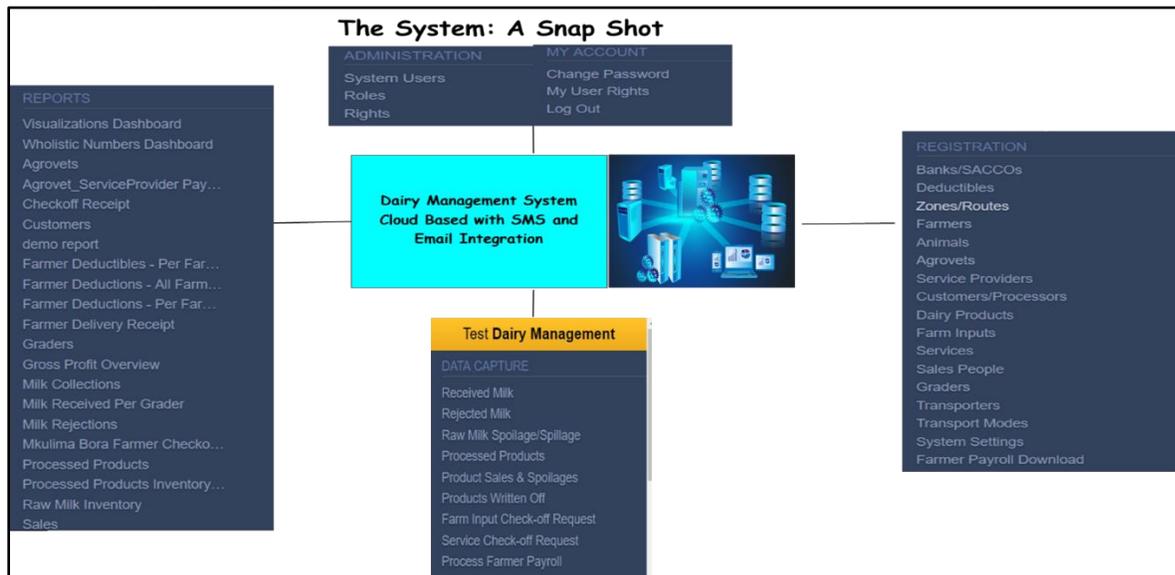


Figure 1: Dairy Management Framework

The application works based on a model developed by the production team as follows;

A. Administration and user accounts Module

1. Admin Login
2. System Users
3. Roles
4. Rights

B. My Account

1. Change Password
2. My User Rights
3. Logout

C. Registration Module

1. Bank registration
2. Registration of farmer deductibles
3. Registration of Zones/Routes
4. Farmer registration
5. Register animals
6. Register a service provider
7. Registration of agro vets
8. Register customers/Processors
9. Registration of Dairy Products processed
10. Registration of Farm Inputs sold at agro vet
11. Registration of Services offered to farmers

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12. Registration of Sales people
13. Registration of Graders
14. Registration of Transporters
15. Registration of Transport modes
16. System Settings
17. Farmer Payroll Download

D. Data Capture Module

1. Milk Received Data Capture
2. Milk rejected data capture
3. Raw milk Spoilage & Spillage data capture
4. Processed products data capture
5. Products Sales, Spoilage and Returns data capture
6. Products written off data capture
7. Farm Input check off request capture
8. Service check off data request capture
9. Process farmer payroll

E. Reports Module

1. Visualisation Dashboard
2. Wholistic Numbers Dashboard
3. Agro vets Service provider Payment
4. Check offs Report
5. Check off receipt
6. Farmer Delivery Receipt
7. Milk Collections
8. Milk Received per Grader
9. Milk Rejections
10. Processed Products
11. Processed Products Inventory
12. Raw Milk Inventory
13. Farmers Deductibles reports
14. Sales Report
15. Farmer Payments Report (Farmer Payroll)
16. Services Report
17. Service Providers Report
18. Service Providers
19. Spoilages
20. Transporters
21. Write offs
22. Report Builder

We shall further define and illustrate the function of each item as outlined in the sections below.

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com

Administration and User Accounts Module

User Authentication (Roles)

Authentication is the act of confirming the identity of a person or other entity. In the context of the DMS, the identities of users must be established to ensure that only authorized parties can access the DMS. The DMS Password authentication verifies individual user identities, but access to network resources is based on membership in user groups. For example, a security policy can be configured to permit access only to the members of one or more user groups. Any user who attempts to access the network through that policy is then authenticated through a request for their username and password. Based on the user groups created, Data entry clerks for example can only access the data capture component module by data viewing, create and modify only, while the Board members can have a user group to only access reports by viewing only. The Super admin can have rights to all system functionalities. To create a user group, you **Go to Roles and create a Role and describe it.**

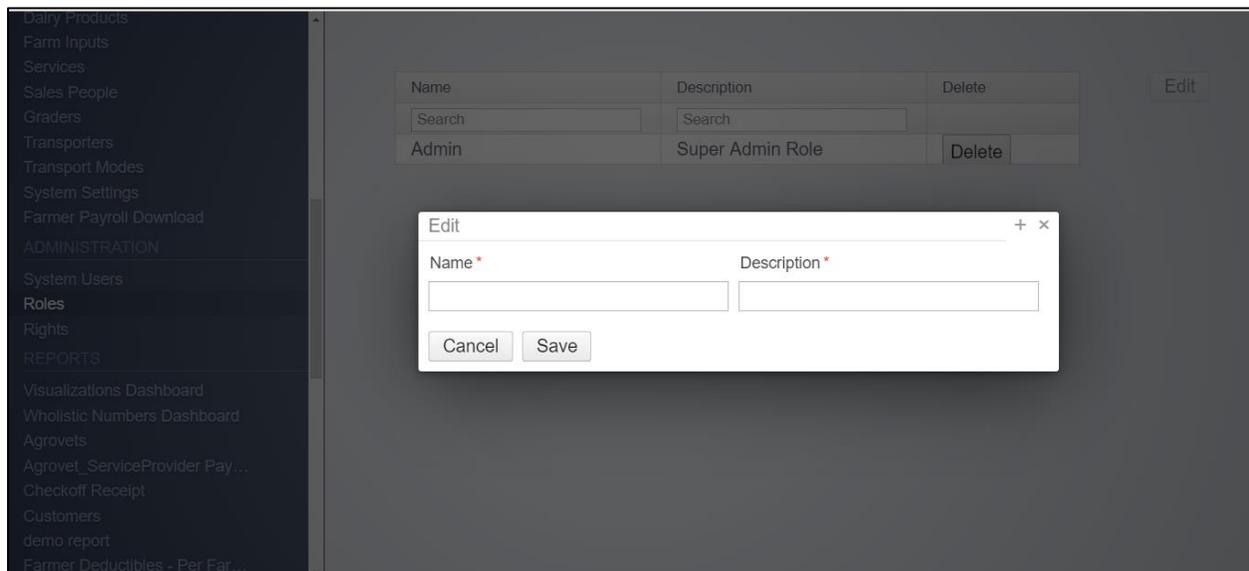


Figure 2: Configuring User Roles

System Users

You can create local user accounts in the DMS under **Administration>System Users > New**. This page is also used to create accounts where an external authentication server stores and verifies the password. The DMS users are registered under this authentication is based on user accounts stored locally on the local Cooperative server. For each account, a username and password is stored.

The system user has the following functions;

- The account groups the registered used into specific user groups with specific roles. By selecting a specific role during registration.
- The account has a disable option by unchecking the active tick box so that you can suspend the account without deleting it.
- The account also has the tick box to allow a user to override the checkoffs and advances limits.

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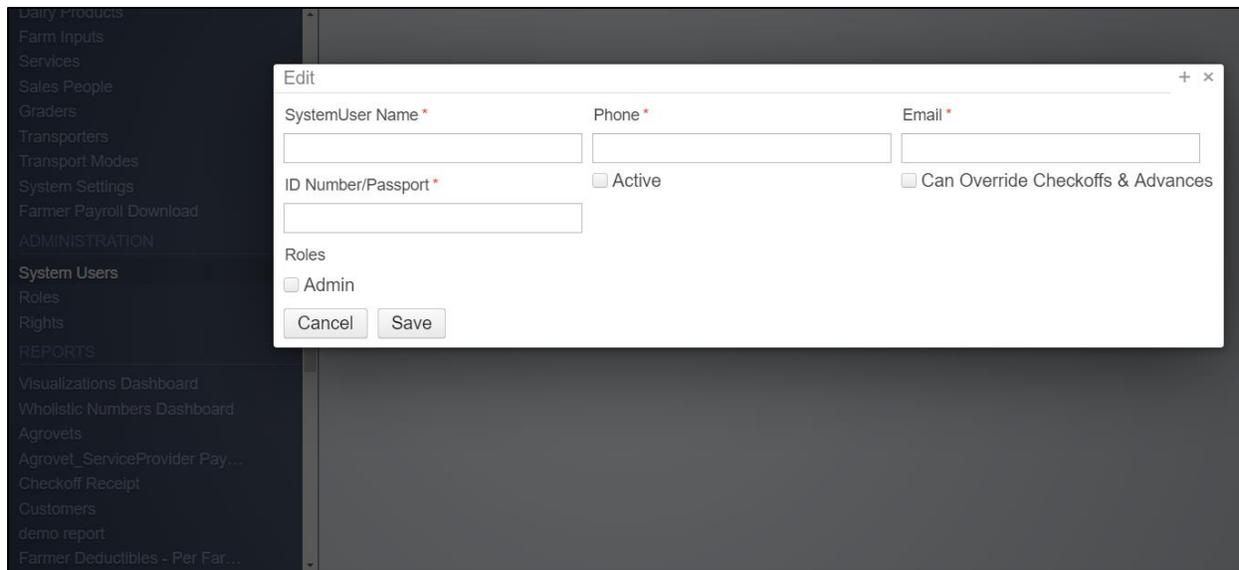


Figure 3: Configuring System Users

Rights

In order to give system rights to any of the 13 modules in the DMS. **Go to Administration >Rights >New.** This Module under rights will authorise which modules the user group created can access. The rights module also has tick boxes to allow level of access in terms of Viewing, Creating, Modifying, Deleting and Authorising.

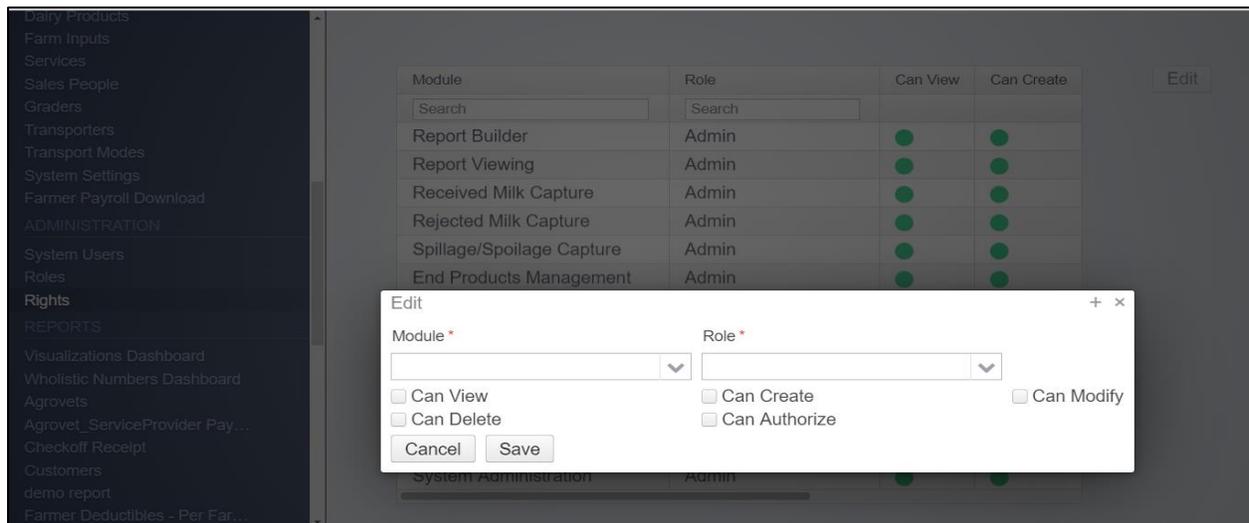


Figure 4: Configuring User Rights

User Logging In

This is the login screen; this prevents anybody from entering into the system. This is the screen for configuring the DMS. It appears every time the application is accessed via a URL. For the local host, we have make sure there is a shortcut on the desktop after installation. When a new user has

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P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com

been created, the system prompts the user to change password after logging in for the first time with the default password given by the super admin.

The **New Password**¹ should pass the following criteria;

- contain at least one digit from 0-9
- contain at least one lowercase character
- contains at least one uppercase character
- contain at least one of the symbols !@#\$%^&_*
- be between 6 and 20 characters long

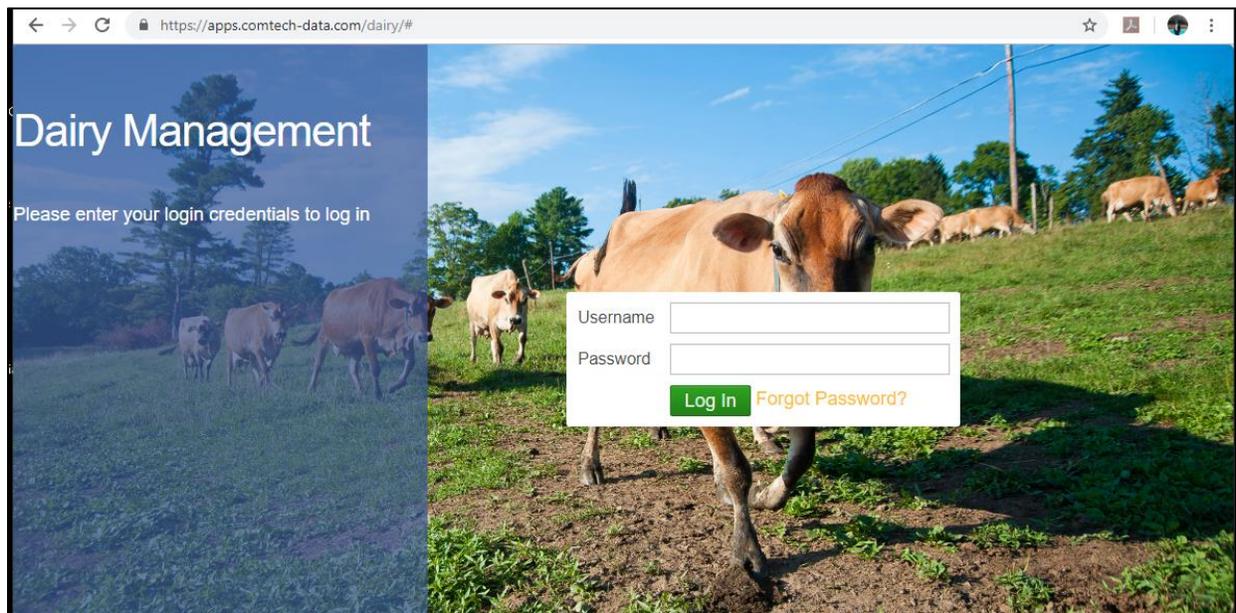


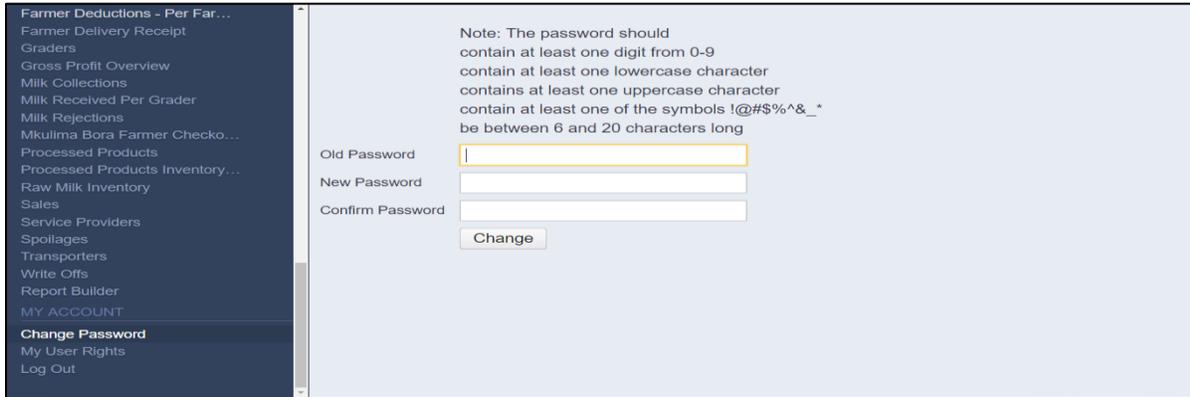
Figure 5: User Log In

¹ **Note: When you forget your password please do not panic. Immediately contact the Super administrator of your cooperative to reset your password manually.**

My Account

Change Password

It is good security policy to change password every **90 days (3 months)** to avoid security breach. To change password, **Go to My Account>Change Password and press Change** after entering all the details required as shown in the screen below. As rule of thumb make sure **New Password** follows the stipulated criteria.



Note: The password should contain at least one digit from 0-9
contain at least one lowercase character
contains at least one uppercase character
contain at least one of the symbols !@#\$%^&_*
be between 6 and 20 characters long

Old Password

New Password

Confirm Password

Figure 6: User Password Change

My User Rights

In order for the user to check the type of access rights they have for each module, **Go to My Account>My User Rights**. The modules in green color are accessible to the logged in user.



Role	Module	Can View	Can Create	Can Modify	Can Delete	Can Authc
Admin	Farm Inputs Checkoff Capture	●	●	●	●	●
Admin	Product Write-Off Capture	●	●	●	●	●
Admin	Registrations	●	●	●	●	●
Admin	Sales Data Capture	●	●	●	●	●
Admin	Received Milk Capture	●	●	●	●	●
Admin	End Products Management	●	●	●	●	●
Admin	Spillage/Spillage Capture	●	●	●	●	●
Admin	System Administration	●	●	●	●	●
Admin	Service Checkoffs Capture	●	●	●	●	●
Admin	Payroll	●	●	●	●	●
Admin	Rejected Milk Capture	●	●	●	●	●
Admin	Report Viewing	●	●	●	●	●
Admin	Report Builder	●	●	●	●	●

Figure 7: User Rights

Logout user account

In order to logout from the account, **Go to My Account>Logout**. When you click on log out, the system will log you out until you enter your username and password again to access account.

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Registration Module

Bank and SACCO registration

Several local banks have already been input. To edit pre-existing bank details, a bank; Select bank, select edit and edit bank details. To register a new bank, **Go to Registration>Banks/SACCOs** and select New and input the bank name and Swift code.

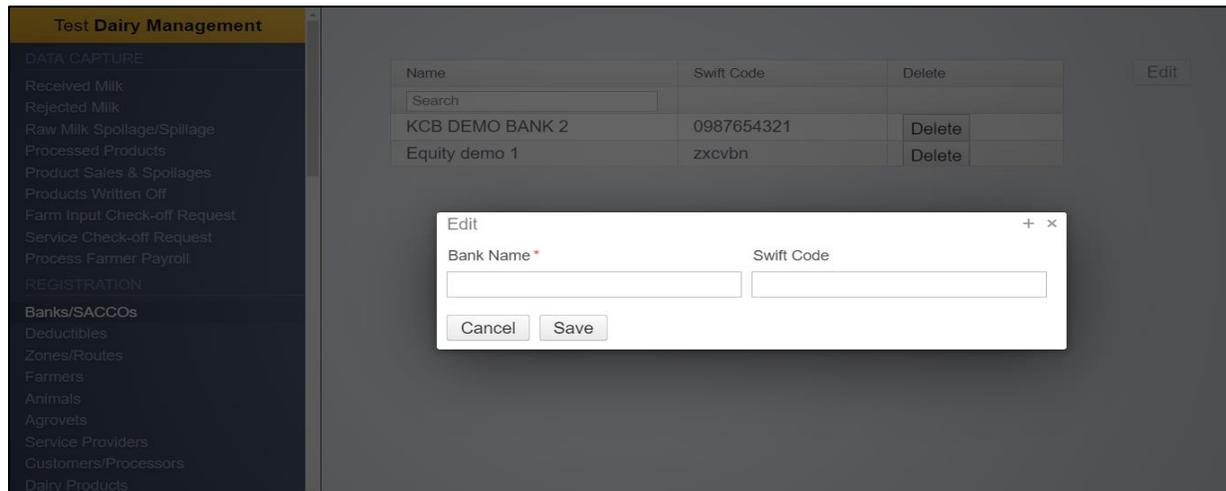


Figure 8: Bank Registration

Registration of farmer deductibles

A deductible is any amount that is deducted from the farmer's milk sales on a monthly basis. A deductible is different from Farm inputs and Services Checkoff. Examples of Deductibles are Shares, Development Fees, Milk Transport Costs and Advance. Deductible can be calculated as a percentage of milk supplied, as a flat rate or as per litre of milk supplied. To register a deductible a new deductible, **Go to Registration>Deductibles** and select **New** and input the deductible Name, amount (*to be deducted per month*), cumulative upper limit (*the total amount of that deductible*) and the calculation for the deductible. Note: If deductible is not cumulative (Cooperative does not stop deducting put **Zero (0)** under cumulative upper limit box. The Deductible amount put for cumulative should automatically stop deducting when the total amount of deductions is accumulated as imputed in the cumulative upper limit.

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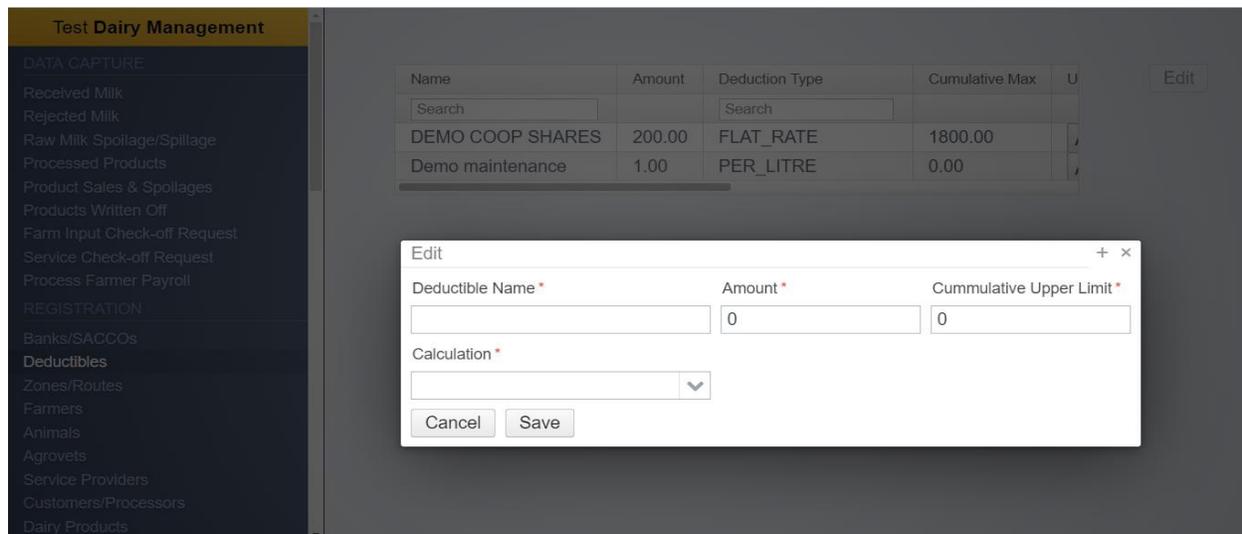


Figure 9: Registration of farmer Deductibles

Registration of Zones/Routes

Most cooperatives have Zone or Routes to track their milk sales and farmers supply loyalty based on routes/Zones. To register a Route/Zone, **Go to Registration>Zones/Routes select New**, Enter name of the route/zone. Save the information.

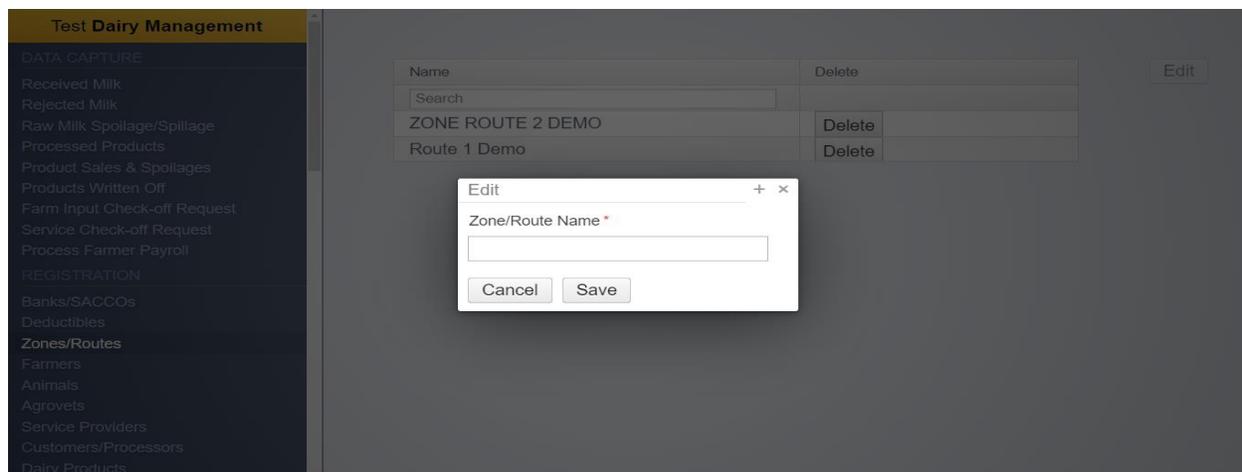


Figure 10: Registration of Routes/Zones

Farmer registration

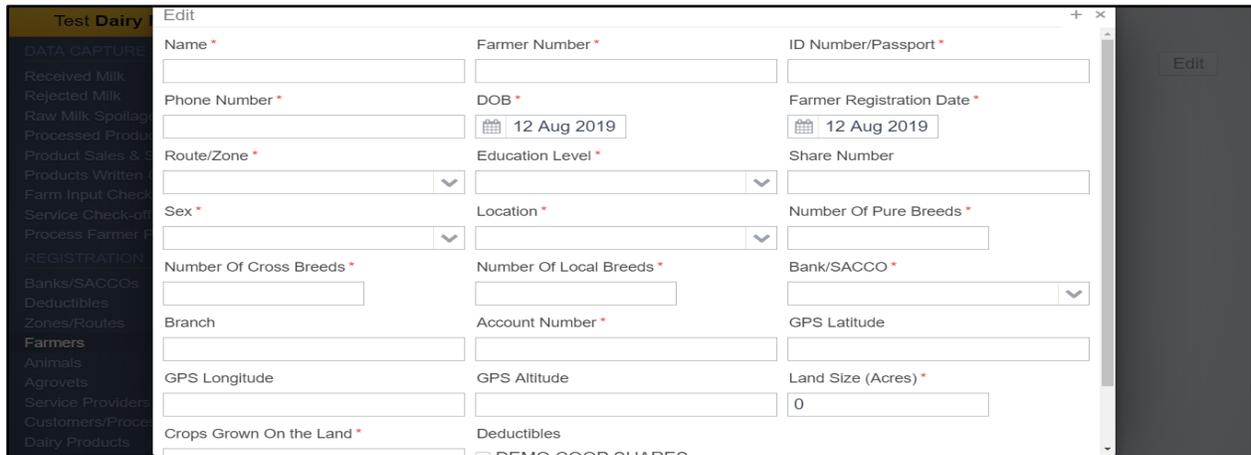
To register a farmer; **Go to Registration>Farmer Registration and select New**. Enter Name, Farmer number, ID, Tel, D.O.B, registration date, route/zone, education level, share number, sex, and location, no. of cattle, bank details, GPS co-ordinates & deductibles, land size and crops grown. When done entering the farmer information remember to tick the applicable deductibles.

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If any deductible applicable to the particular farmer is missing. Go to Deductibles and have it registered in the system.



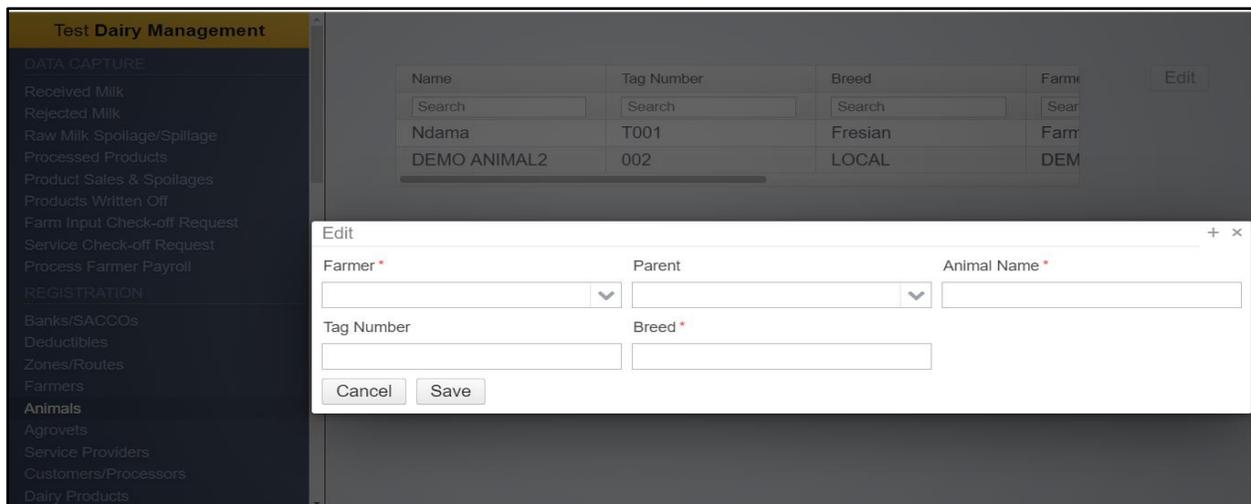
The screenshot shows a web application interface for farmer registration. On the left is a navigation menu with categories like 'DATA CAPTURE', 'REGISTRATION', and 'Farmers'. The main area is a form titled 'Edit' with the following fields:

- Name *
- Farmer Number *
- ID Number/Passport *
- Phone Number *
- DOB * (12 Aug 2019)
- Farmer Registration Date * (12 Aug 2019)
- Route/Zone *
- Education Level *
- Share Number
- Sex *
- Location *
- Number Of Pure Breeds *
- Number Of Cross Breeds *
- Number Of Local Breeds *
- Bank/SACCO *
- Branch
- Account Number *
- GPS Latitude
- GPS Longitude
- GPS Altitude
- Land Size (Acres) * (0)
- Crops Grown On the Land *
- Deductibles

Figure 11: Farmer Registration

Register Dairy animals

To register an animal; **Go to Registration>Animals**, select **New** and enter the animal details. If it's the first animal to be registered, the parent dropdown for that particular farmer will be inactive. To enter information, Select farmer from the drop down arrow, -name of the mother cow, the name the farmer has given the cow, tag number and its breed, then save the details.



The screenshot shows the 'Test Dairy Management' interface. It features a table of existing animals and an 'Edit' form for a new animal.

Name	Tag Number	Breed	Farmer	Edit
Ndama	T001	Fresian	Farm	
DEMO ANIMAL2	002	LOCAL	DEM	

The 'Edit' form includes the following fields:

- Farmer *
- Parent
- Animal Name *
- Tag Number
- Breed *

Buttons: Cancel, Save

Figure 12: Dairy animal registration

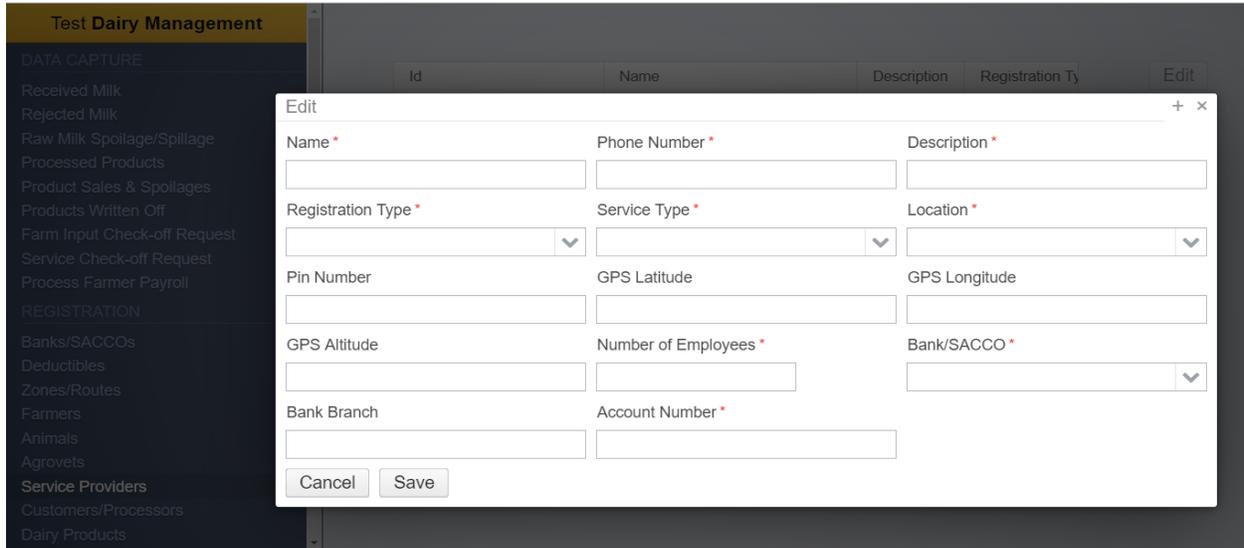
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Registration of a service provider

To register a service provider; **Go to Registration>Service provider, select New**, Enter Name, full description of services they are offering, registration type of their business, pin number of the business, number of employees, bank details, location of the business together with GPS coordinates. Save the information.



The screenshot shows a web application interface with a sidebar menu on the left and a main content area. The sidebar menu includes sections for 'DATA CAPTURE' (Received Milk, Rejected Milk, Raw Milk Spoilage/Spillage, Processed Products, Product Sales & Spoilages, Products Written Off, Farm Input Check-off Request, Service Check-off Request, Process Farmer Payroll) and 'REGISTRATION' (Banks/SACCOs, Deductibles, Zones/Routes, Farmers, Animals, Agrovets, Service Providers, Customers/Processors, Dairy Products). The 'Service Providers' option is highlighted. The main content area displays a table with columns for 'Id', 'Name', 'Description', 'Registration Ty', and 'Edit'. An 'Edit' modal window is open, containing the following fields:

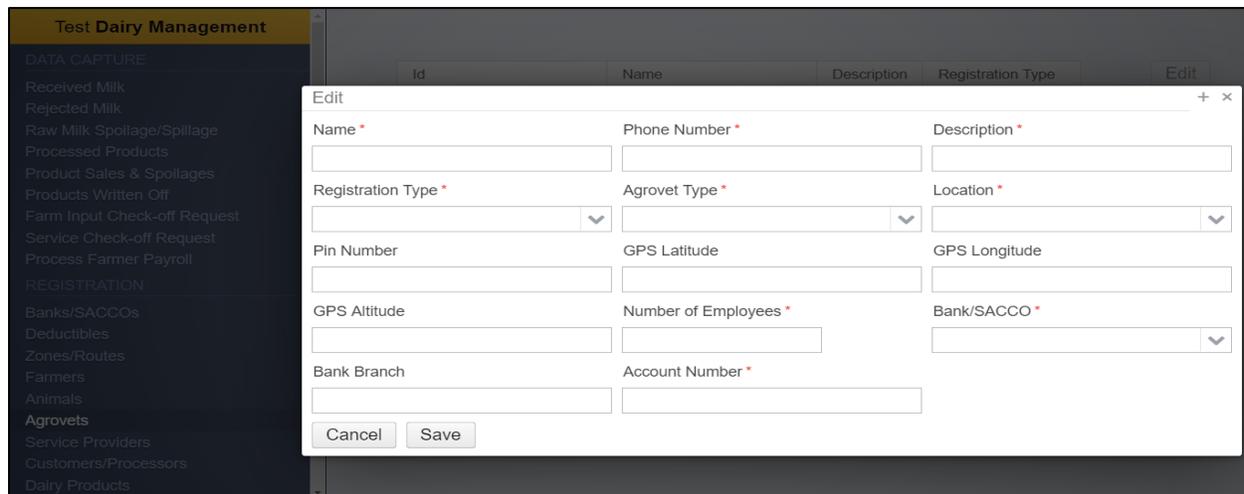
- Name *
- Phone Number *
- Description *
- Registration Type *
- Service Type *
- Location *
- Pin Number
- GPS Latitude
- GPS Longitude
- GPS Altitude
- Number of Employees *
- Bank/SACCO *
- Bank Branch
- Account Number *

At the bottom of the modal are 'Cancel' and 'Save' buttons.

Figure 13: Service provider registration

Registration of agro vets

To register an agro vets; **Go to Registration>Agro vets, select New**, Enter Name of the business, description of goods and services they offer, business registration type, pin number, number Of employees, bank details, location of business together with GPS coordinates. Save the information.



The screenshot shows the same web application interface as Figure 13, but with the 'Agrovets' option highlighted in the sidebar menu. The 'Edit' modal window is open, containing the following fields:

- Name *
- Phone Number *
- Description *
- Registration Type *
- Agrovet Type *
- Location *
- Pin Number
- GPS Latitude
- GPS Longitude
- GPS Altitude
- Number of Employees *
- Bank/SACCO *
- Bank Branch
- Account Number *

At the bottom of the modal are 'Cancel' and 'Save' buttons.

Figure 14: Agro vet Registration

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

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Registration of customers/Processors

This section is used to register customer and processors who we will be purchasing the milk or any other processed products (Cheese, Yoghurt, Mala etc.) from the cooperative. To register a customer & processor: **Go to Registration>Customer, select New**, Enter the business name of the customer/processor, description of their business, registration type of the business, business pin number, number of employees, business bank details and GPS coordinates where the business is located. Save the information.

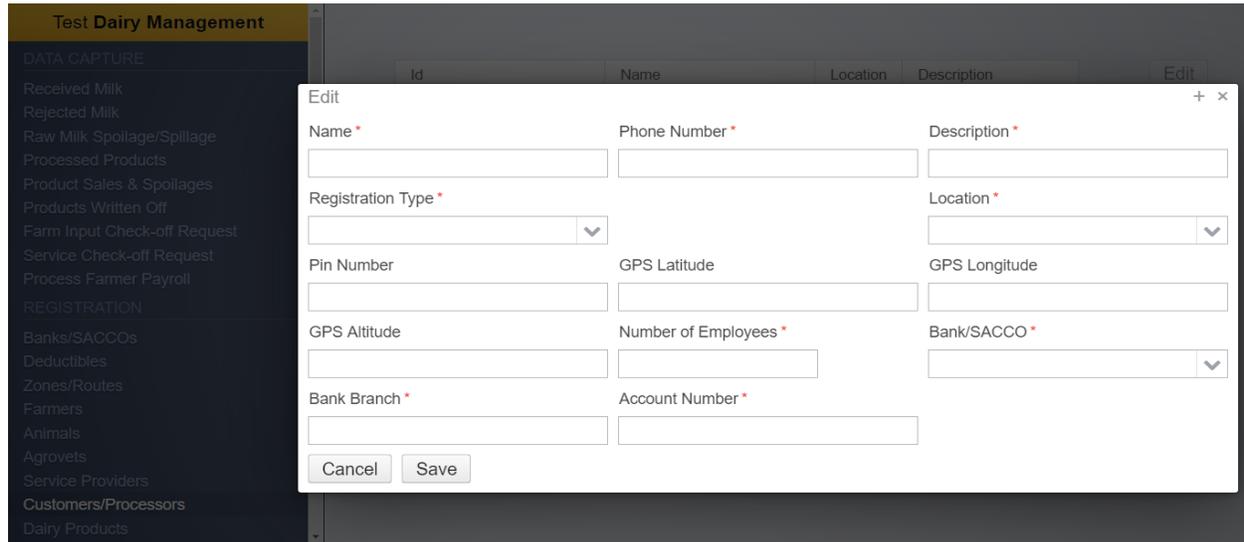
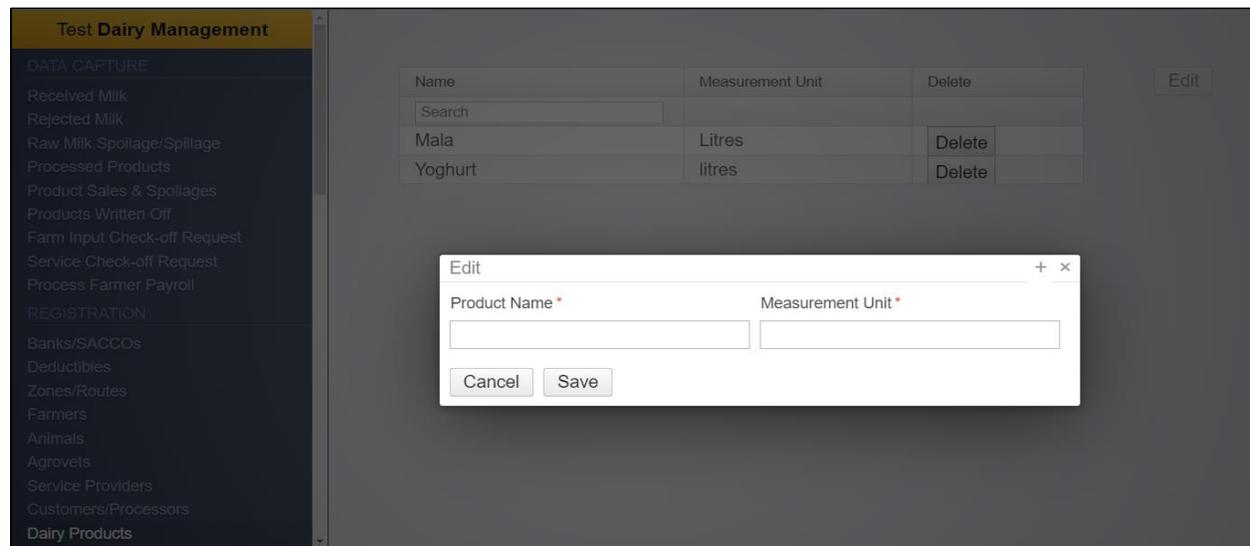


Figure 15: customers/Processors Registration

Registration of Dairy shop products

Register a product stocked in the Dairy Shop: **Go to Registration>Dairy Products, select new**, Enter name of product and measurement unit (e.g. litre, cups, packets or glass). Save the information.



Name	Measurement Unit	Delete
Mala	Litres	Delete
Yoghurt	litres	Delete

Figure 16: Dairy Products registration

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Registration of Inputs

To register farm inputs offered on checkoff by agro vet either in house or outsourced; **Go to Registration> Farm Inputs, select New**, Enter name of inputs stocked and their measurement unit (e.g. kgs, bags, straws, packets or sachets, drums). Save the information. Make sure you register all the inputs in the agro vet.

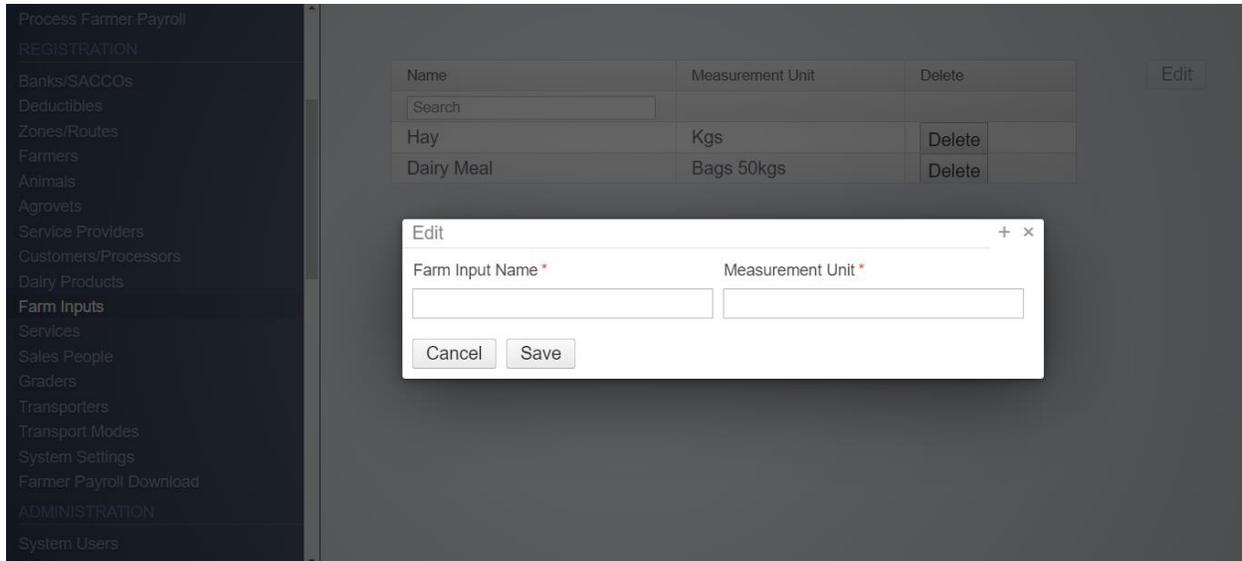


Figure 17: Farm Inputs Registration

Registration of services

To register services offered by the service providers on checkoff; **Go to Registration> Service, select New**, Enter name of services offered and their measurement unit (e.g. cows, visit, farm, farmers and KM). Save the information. Make sure you register all the services offered by the in-house or contracted service providers.

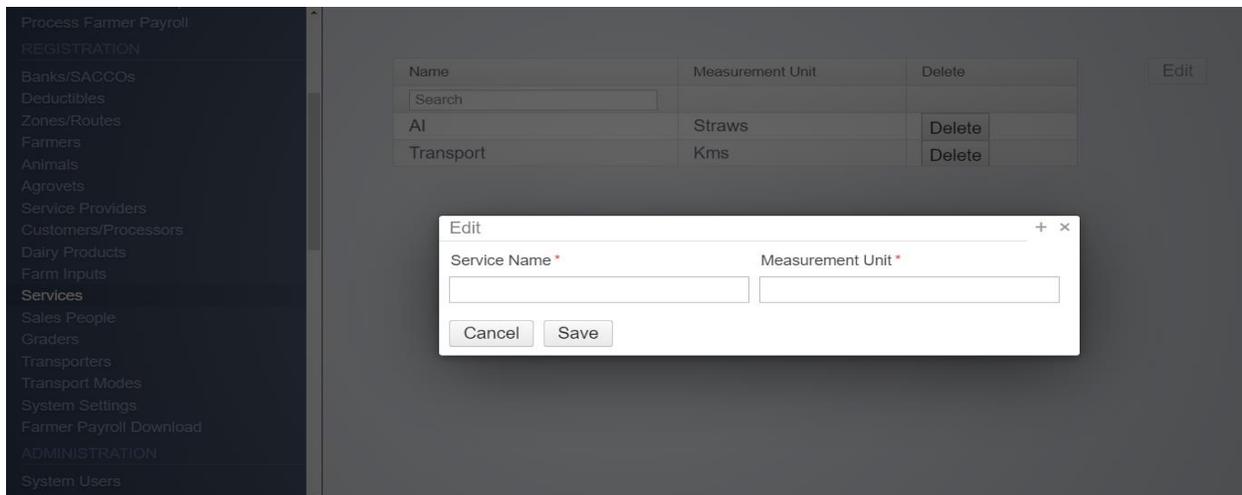


Figure 18: Services

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Registration of Sales people

To register a sales person; **Go to Registration>Sales people, select New.** Enter Name, Cell number, ID no. and email. Check active/inactive status. This enable the admin to deactivate the account without deleting it.

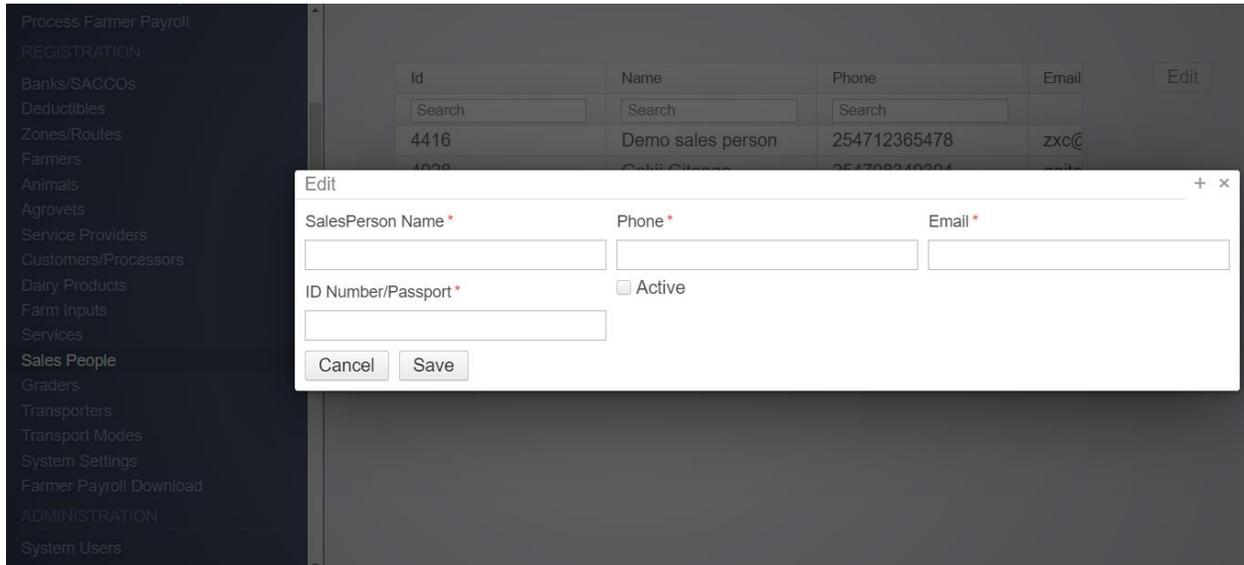


Figure 19: Sales people registration

Registration of Graders

To register a Grader; **Go to Registration>Grader, select New.** Enter Grader Name, Cell number, ID no, email and qualification. Check active/inactive status. This enable the admin to deactivate the account without deleting it.

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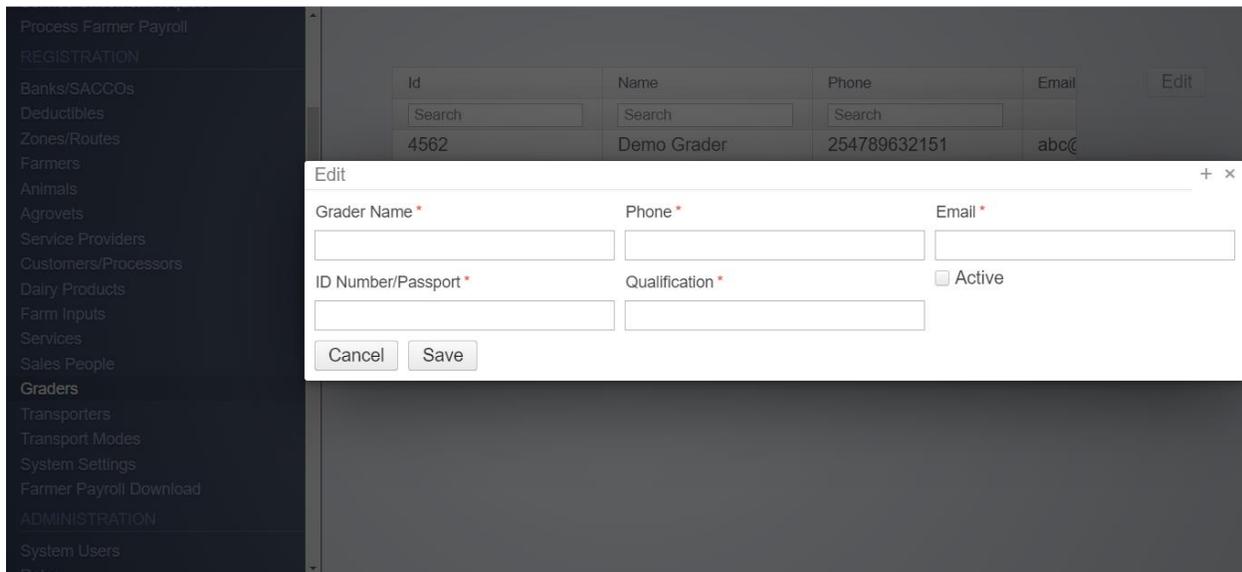


Figure 20: Grader registration

Registration of Transporters

To register a Transporter; **Go to Registration>Transporter, select New.** Enter Name, Cell number, ID no. and email. Check active/inactive status. This enable the admin to deactivate the account without deleting it.

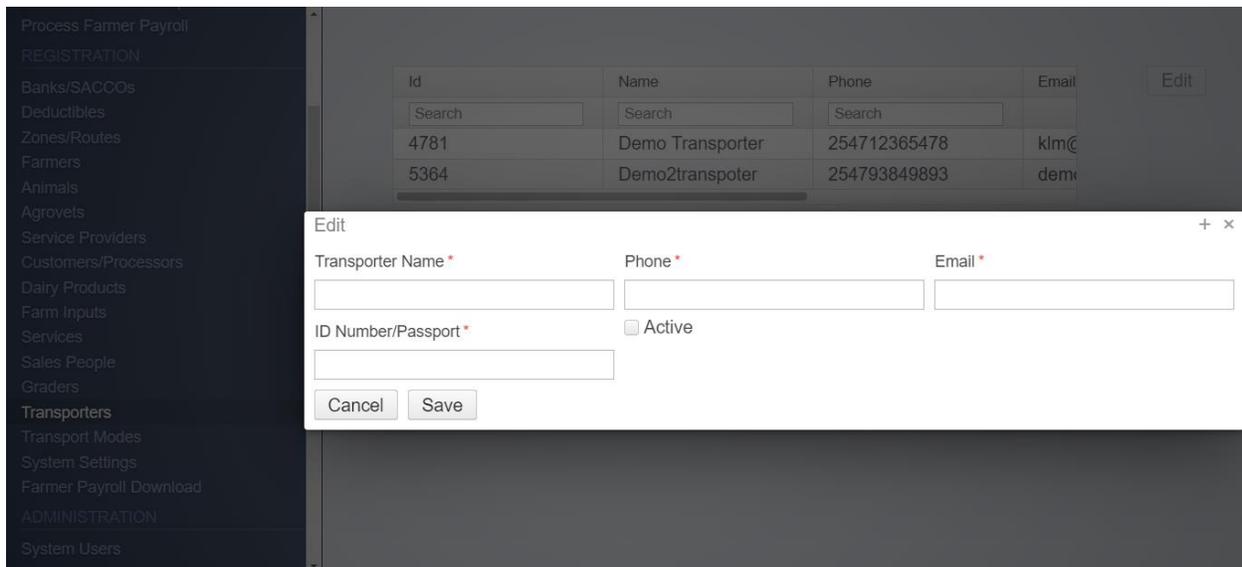


Figure 21: Registration of Transporters

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Registration of Transport modes

To register a Transport mode; **Go to Registration>Transport mode, select New.** Enter Name (e.g. Bicycle, Motorbike, Car, Lorry, Refrigerated truck) and click save.

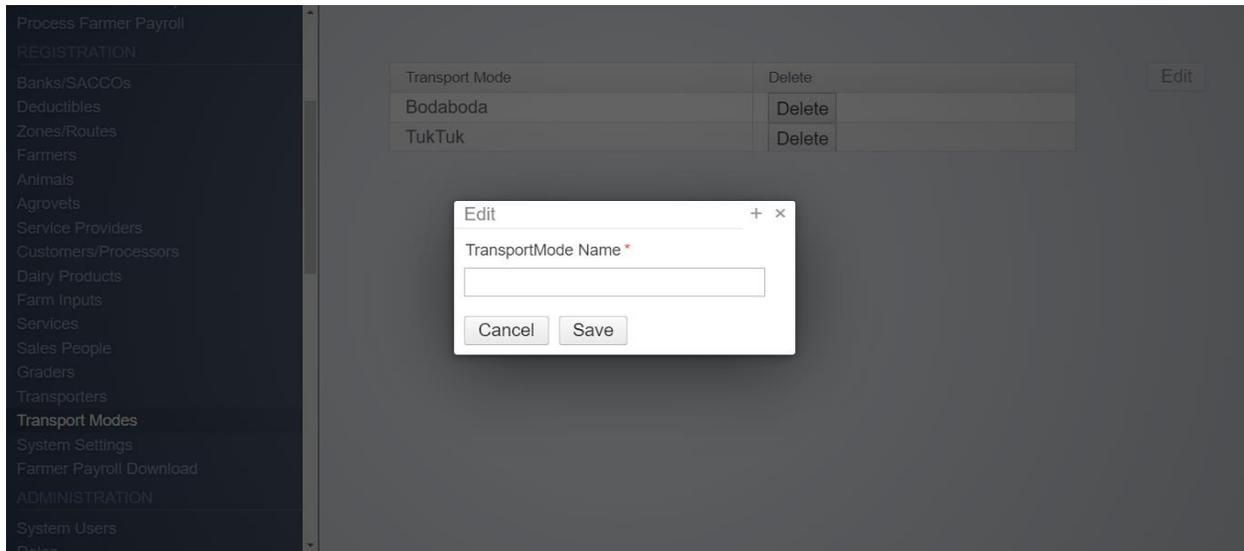


Figure 22: Transport modes

System Settings

The Systems settings module is for configuring the Milk price, Checkoff limits, Transport commission, Sales commission and Grader commission. The price can be set at any time and applied to all milk for unpaid collections (before payroll is processed). The Check-off limit is set as a percentage of milk delivered by the farmer at point of checkoff request. The Commissions can be set as percentage, as per litre or as flat rate and paid to the service providers as a bonus at the end of the month. When the settings have been imputed save settings and close the window.



Figure 23: Systems Settings

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Farmer Payroll Download

The farmer payroll download is for downloading the processed payroll for a given payment period. To download payroll, Go to Registration>Payroll Download and select the payment period and either view payroll or process payroll. **Note: When you process payroll in the data capture section, the function not reversible. All the processed payrolls will be listed when you click on view payrolls and when you click download payroll, the payroll will be downloaded.**

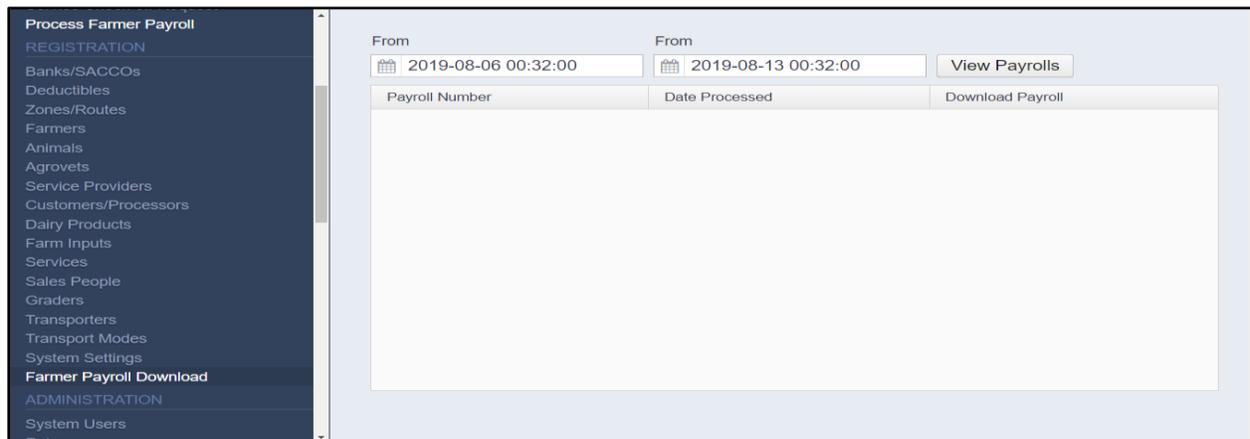


Figure 24: Farmer payroll download

Data Capture

Milk Received Data Capture

To enter milk received data: **Got to Data Capture>Received Milk**, Enter date, name of farmer, name of transporter, transport mode, name of grader and litres of milk received. If the Computer is connected to a digital weighing scale, the received milk data is automatically captured by the system. Select save to capture the data in the system. By default, the system will always capture the current date.

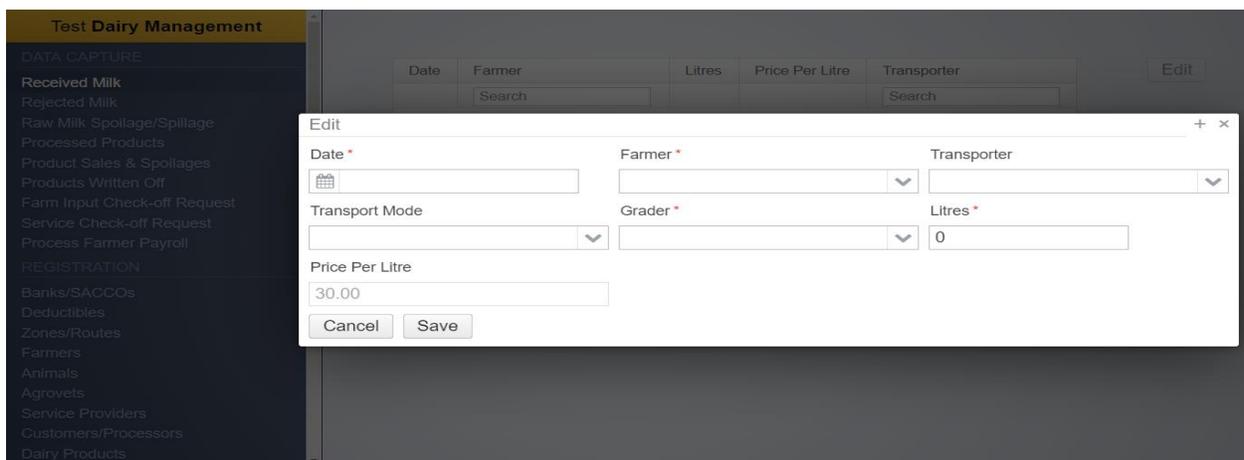


Figure 25: Received milk

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Milk rejected data capture

To enter milk rejected data; **Go to Data Capture>Rejected Milk, Select New**, Enter date, name of farmer, name of transporter, transport mode, name of grader and litres of milk received. If the Computer is connected to a digital weighing scale, the rejected milk data is automatically captured by the system. Select save to capture the data in the system. By default, the system will always capture the current date. Rejected milk will not be included in the milk inventory. The rejected milk data collected is basically for reporting purposes to inform management and board planning.

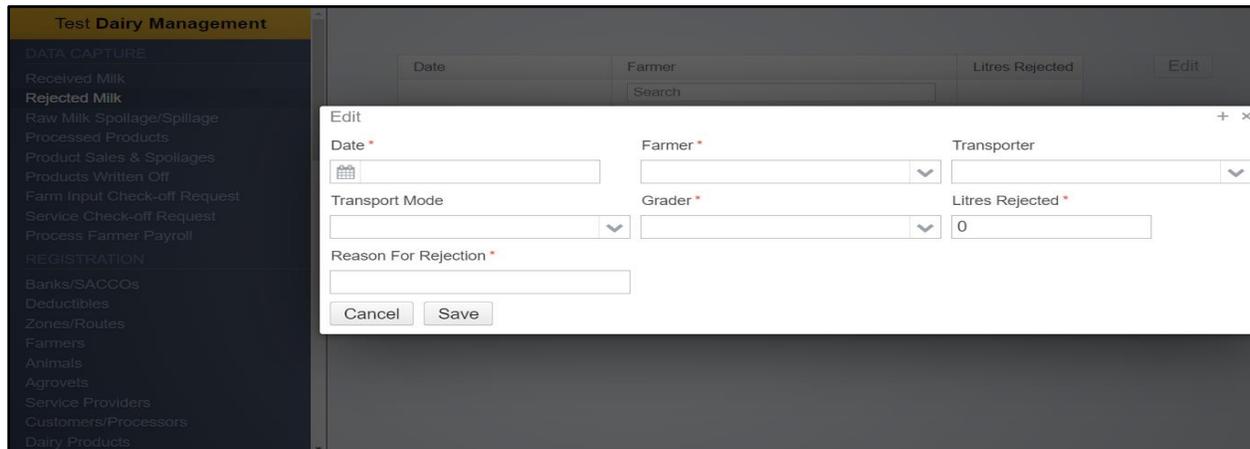


Figure 26: Rejected milk

Spoilage & Spillage data capture

To enter Raw milk spoilage & spillage data; **Got to Data Capture> Raw milk Spoilage/spillage, Select New**, Enter date, name of grader, litre spoilt, reasons for spoilage/spillage. Save the information.

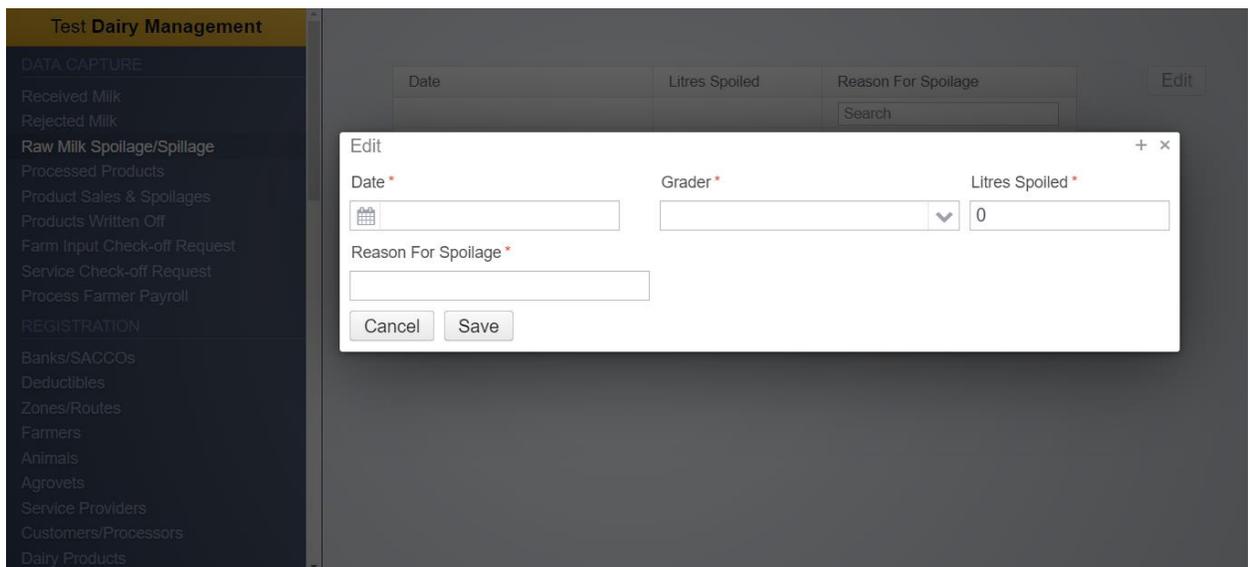


Figure 27: Spoilage & Spillage

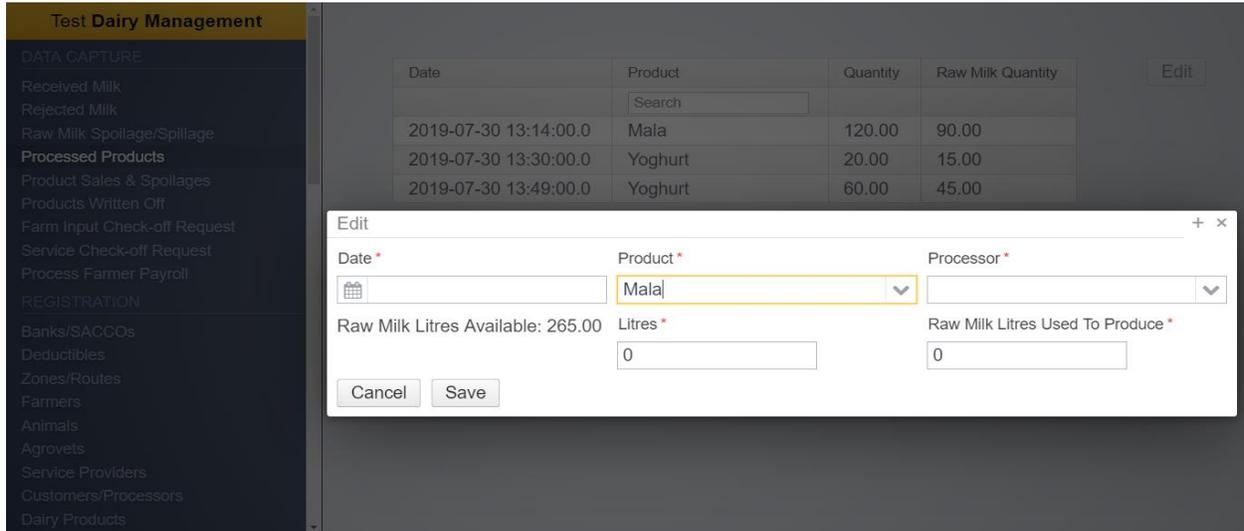
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Processed products data capture

To enter processed products data; **Got to Data Capture>Processed products, Select New**, enter date, product, name of processor, quantity & raw milk used for production. Save the information. When processing any product, the system will always show the amount of raw milk (e.g. 265 litres) in the cooler before processing. Always have a chart of ratio between raw milk and quantity of product to be processed for quick data input.



The screenshot shows the 'Test Dairy Management' application. On the left is a navigation menu with categories like 'DATA CAPTURE' and 'REGISTRATION'. The main area displays a table of processed products:

Date	Product	Quantity	Raw Milk Quantity	Edit
2019-07-30 13:14:00.0	Mala	120.00	90.00	
2019-07-30 13:30:00.0	Yoghurt	20.00	15.00	
2019-07-30 13:49:00.0	Yoghurt	60.00	45.00	

An 'Edit' dialog box is open, showing the following fields:

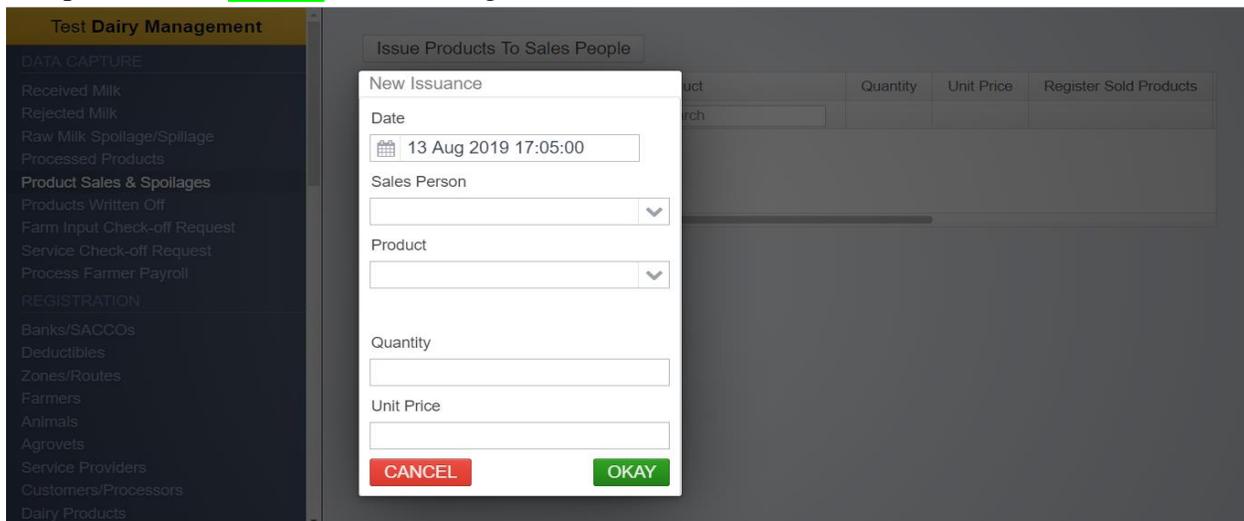
- Date:
- Product:
- Processor:
- Raw Milk Litres Available: 265.00
- Litres:
- Raw Milk Litres Used To Produce:

Buttons for 'Cancel' and 'Save' are visible at the bottom of the dialog.

Figure 28: Processed products

Sales products and spoilages and returns

To enter a sales of products, **Go to Data Capture>Sales and Spoilages>select Issue products to sales people**, A dialogue box will pop out. Enter date, sales person, product, and quantity & unit price. Select **OKAY** to issue the good and save data.



The screenshot shows the 'Test Dairy Management' application with the 'Issue Products To Sales People' dialog box open. The dialog box contains the following fields:

- Date:
- Sales Person:
- Product:
- Quantity:
- Unit Price:

Buttons for 'CANCEL' and 'OKAY' are visible at the bottom of the dialog.

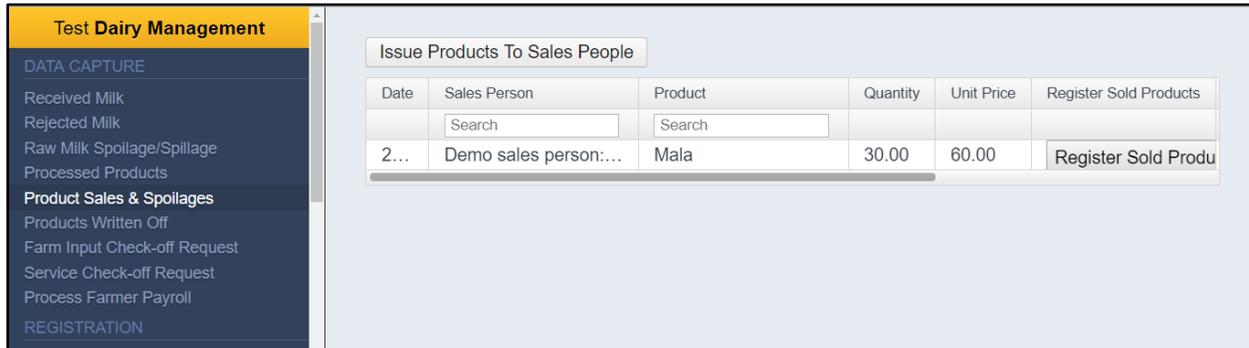
Figure 29: Sales products

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When goods have been issued, the issued sales person name will be active on the issued products list as shown in table below until the sales person reconciles the sales at the end of the day.

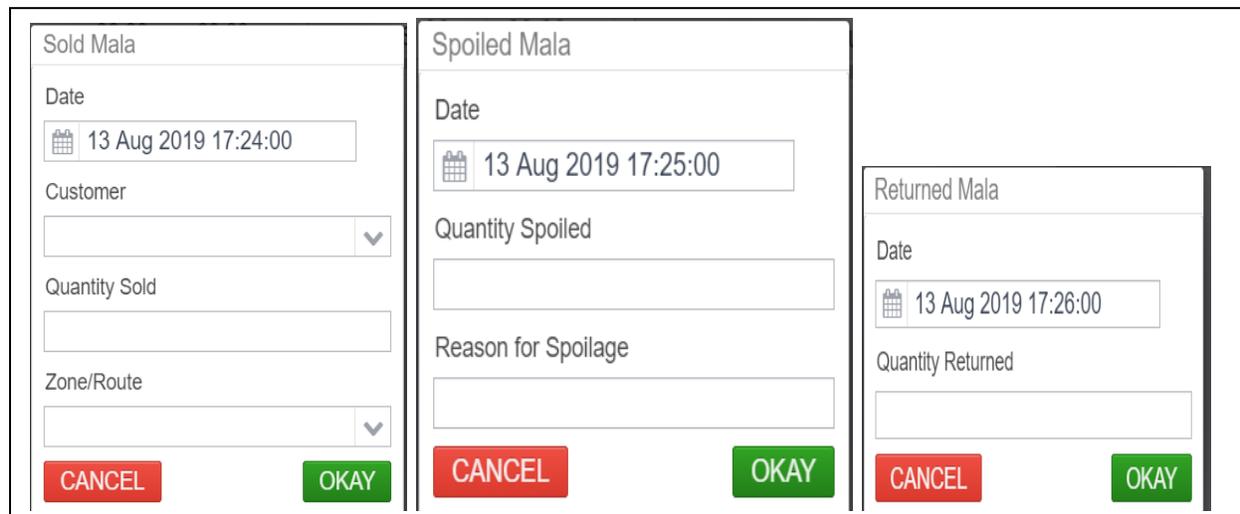


Date	Sales Person	Product	Quantity	Unit Price	Register Sold Products
	<input type="text" value="Search"/>	<input type="text" value="Search"/>			
2...	Demo sales person:...	Mala	30.00	60.00	<input type="button" value="Register Sold Products"/>

Figure 30: Products Issued to sales people

Reconciliation of issued Milk

When reconciling issued milk after sales, the sales clerk needs to use the sales module to reconcile the issued milk for each sales person. **To register Sold Products, Go to Data Capture>Sales and Spoilages>select Register Sold Products.** This will allow you to capture the sold products from the issued products. **To Register Spoilages², Go to Data Capture>Sales and Spoilages>select Register Spoiled Products.** All spoilages for the issued products of that transaction will be captured. **To register Returned Products, Go to Data Capture>Sales and Spoilages>select Register Returned Products.** The data captured is shown in table below for each class. All



Sold Mala

Date:

Customer:

Quantity Sold:

Zone/Route:

Spoiled Mala

Date:

Quantity Spoiled:

Reason for Spoilage:

Returned Mala

Date:

Quantity Returned:

Figure 31: Reconciliation of issued milk

products issued that have not been sold and are in good condition will be returned to the stock reissued or carried forward to the next day.

² Spoilages/Spillages are products that have been issued and during transportation they spill or break due to problems such as handling, transportation accidents etc.

Products written off³

To enter products written off, **Go to Data Capture> Products written off >select New**, Enter date, grader name, product, and quantity & comments. Save data. Written off products help balance the stock inventory. *During user authentication the Manager should mainly be responsible to authorize entry of Written off products.*

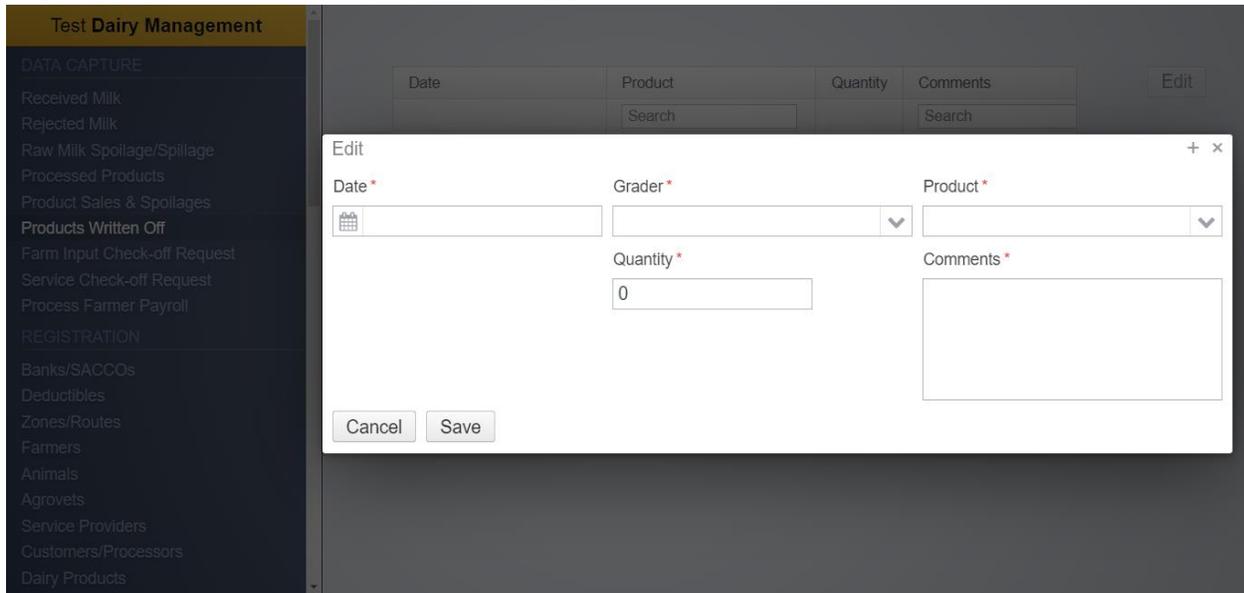


Figure 32: Written off products

Goods check off request

To enter goods check off data; **Go to Data Capture> Farm Input Checkoff Request**, Select farmer from the drop down arrow, select the agro vets from the drop down arrow, click create. The details of the farmer eligibility for checkoff appear on the screen. If he is credit worthy, meaning his net amount payable is positive (+) and sufficient to pay for the item required from the agro vets, from the item required, select from the drop down arrow what the farmer is purchasing, units and price. Click add button.

A list of the items appear. If the farmer wants to purchase another item from the agro vets, same process is repeated. If the farmer does not qualify for checkoff due to his credit history of that month, only the authorised personnel can override the checkoff request by entering their override username and password.

³ Written off products are products that have expired or been deemed not good for human consumption by Kenya Dairy Board. They also include spoiled or spilled products in the Cooperative Dairy plant.

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Test Dairy Management

DATA CAPTURE

Received Milk

Rejected Milk

Raw Milk Spoilage/Spillage

Processed Products

Product Sales & Spoilages

Products Written Off

Farm Input Check-off Request

Service Check-off Request

Process Farmer Payroll

REGISTRATION

Banks/SACCOs

Deductibles

Zones/Routes

Farmers

Animals

Agrovets

Service Providers

Customers/Processors

Dairy Products

Select Farmer
Agrovet

Production This Payment Period: KES 0.00

Deductions This Payment Period: KES 200.00

Check-off items This Payment Period: KES 0.00

Net Amount Payable This Payment Period: KES -200.00

Allowed Checkoff Value: 0.00

Item Required
Bags 50kgs

Price Per Bags 50kg

Item	Quantity	Unit Price	Total	Delete
Dairy Meal	1	2000	2,000.00	Delete Item

Override Username
Override Password

Grand Total: 2,000.00

Figure 33: Farm Inputs Checkoff request

Service check off data capture

To register service checkoff request; **Go to Data Capture> Service Checkoff Request**, Select farmer, select service provider, select create. The details of the farmer eligibility for checkoff appear on the screen. If he is credit worthy, meaning his net amount payable is positive (+) and sufficient to pay for the item required from the service provider, from the services required, select from the drop down arrow the service required by the farmer, units price. Click add button.

A list of the items appear. If the farmer wants to purchase another service from the service provider, same process is repeated. If the farmer does not qualify for checkoff due to his credit history of that month, only the authorised personnel can override the checkoff request by inserting their override username and password.

Test Dairy Management

DATA CAPTURE

Received Milk

Rejected Milk

Raw Milk Spoilage/Spillage

Processed Products

Product Sales & Spoilages

Products Written Off

Farm Input Check-off Request

Service Check-off Request

Process Farmer Payroll

REGISTRATION

Banks/SACCOs

Deductibles

Zones/Routes

Farmers

Animals

Agrovets

Service Providers

Customers/Processors

Dairy Products

Select Farmer
Service Provider

Production This Payment Period: KES 0.00

Deductions This Payment Period: KES 200.00

Check-off items This Payment Period: KES 0.00

Net Amount Payable This Payment Period: KES -200.00

Allowed Checkoff Value: 0.00

Service Required
Cow

Price Per Cow

Service	Quantity	Unit Price	Total	Delete
Vaccinations	5	500	2,500.00	Delete Item

Override Username
Override Password

Grand Total: 2,500.00

Figure 34: Services Checkoff request

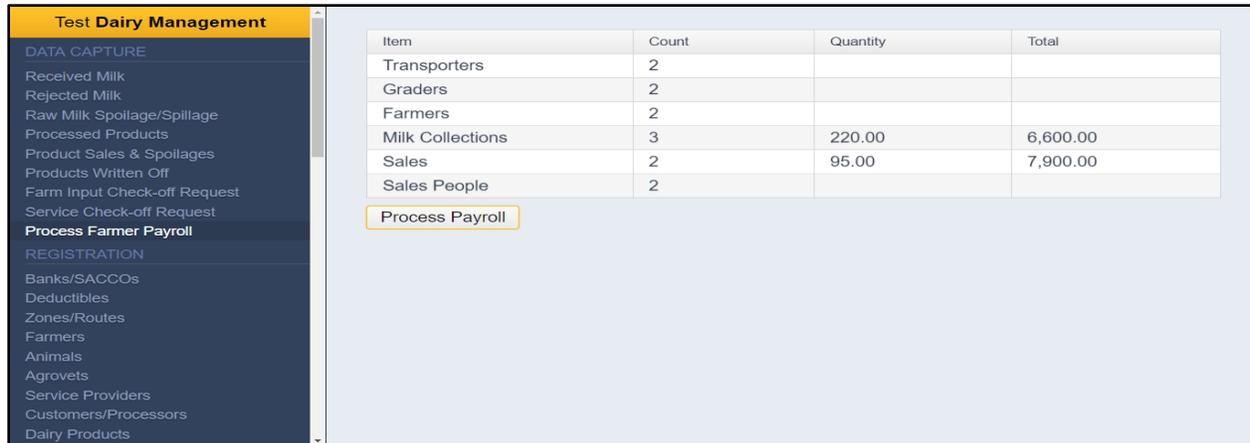
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Process farmer payroll

To process farmer payroll, **Go to Data Capture>Process farmer Payroll, Select process payroll.** The system will ask you if you wish to proceed in processing because the function is not reversible. If you click yes the payroll will be processed and ready for download under **Registration>Payroll download.**



Item	Count	Quantity	Total
Transporters	2		
Graders	2		
Farmers	2		
Milk Collections	3	220.00	6,600.00
Sales	2	95.00	7,900.00
Sales People	2		

Figure 35: Farmer Payroll

Note: All module and data validation and quality checks. Always make sure you read carefully the data validation messages that pop out from the system for your action. Below are examples of data validation messages that you should look out.

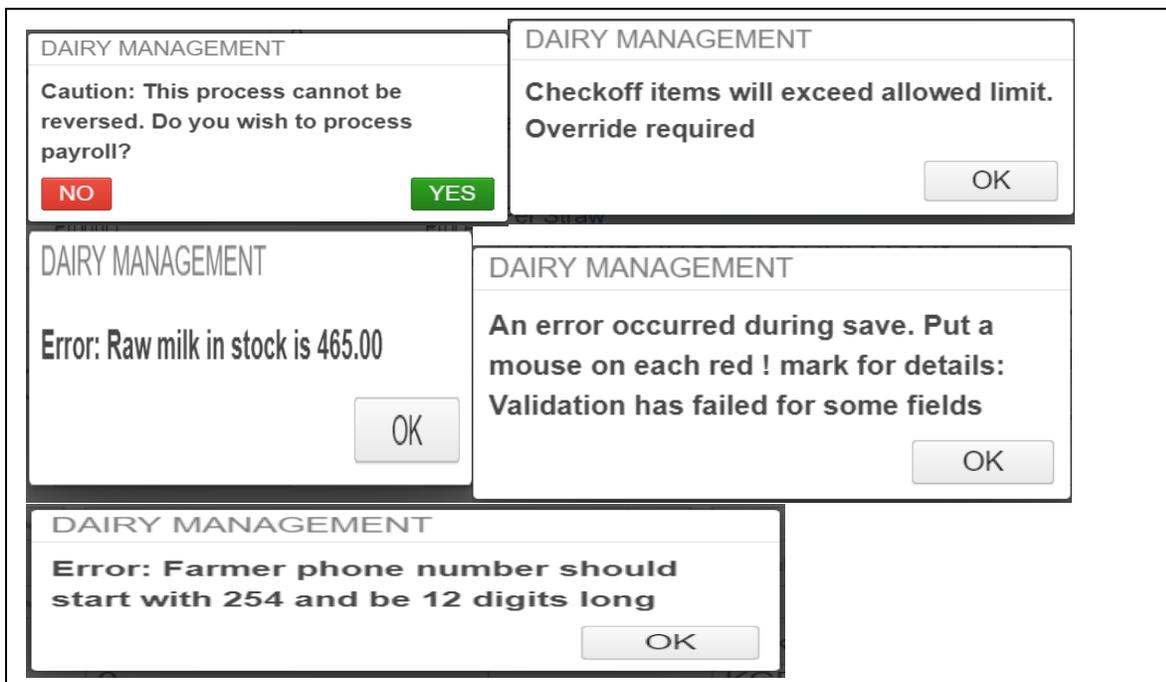


Figure 36: Dairy Management System Errors

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Reports

The DMS Reporting module is dynamic and very flexible depending on the needs of the Cooperative in terms of its reporting structure and indicators they track to measure progress and profitability. The DMS has default reports that we have already generated based on expert advice that are key to inform management and cooperative board on day to day management of the cooperative.

Ideally, only the cooperative Senior Management and Board can access the reporting module, and this can be done during user authentication. However depending on the discretion of the board any member or staff can be given access to view the reports.

The following re the generic reports that are key for dairy cooperatives management.

Visualisation Dashboard

The "Visualisation Dashboard Reporting" module can be accessed by Going to Reports then select Visualisation Dashboard. The Visualisation dashboard shows the Milk Trends by Date, Sales per product date and Products processed for that Date period selected you want to visualise.

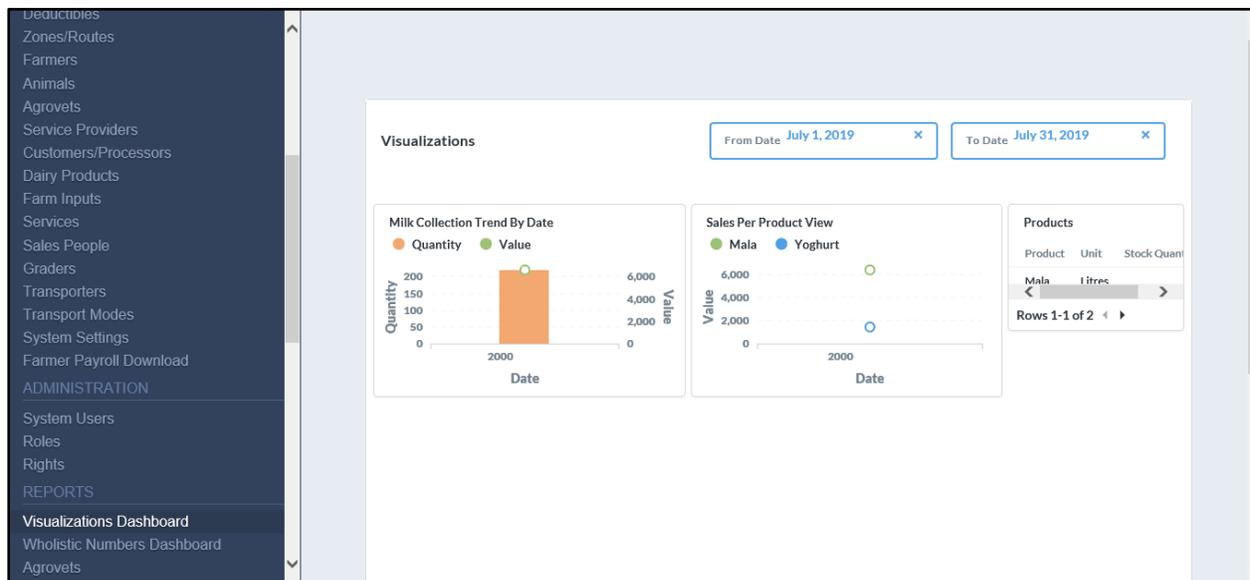


Figure 37: Visualization Dashboard

Wholistic Numbers Dashboard

The “Wholistic Number Dashboard” window provides the user a brief overview of all the activities conducted during the month and volumes achieved.

The Wholistic Number Dashboard is accessed by **Going to Reports then select Wholistic Number Dashboard**. The dashboard will open with a list of indicators of interest. The Wholistic number dashboard shows the Number of registered farmers, number of active farmers, number of service providers, Number of Customers, Amount of Raw milk Received, Milk delivery to date, Milk collected for the payment period, Rejected milk by date, Milk collections by date, Litres

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spoiled by date, Checkoff for inputs and services and average milk production per farmer. These are quick snapshot indicators that gives cooperative management and the board data for quick decision making on a daily and monthly basis.

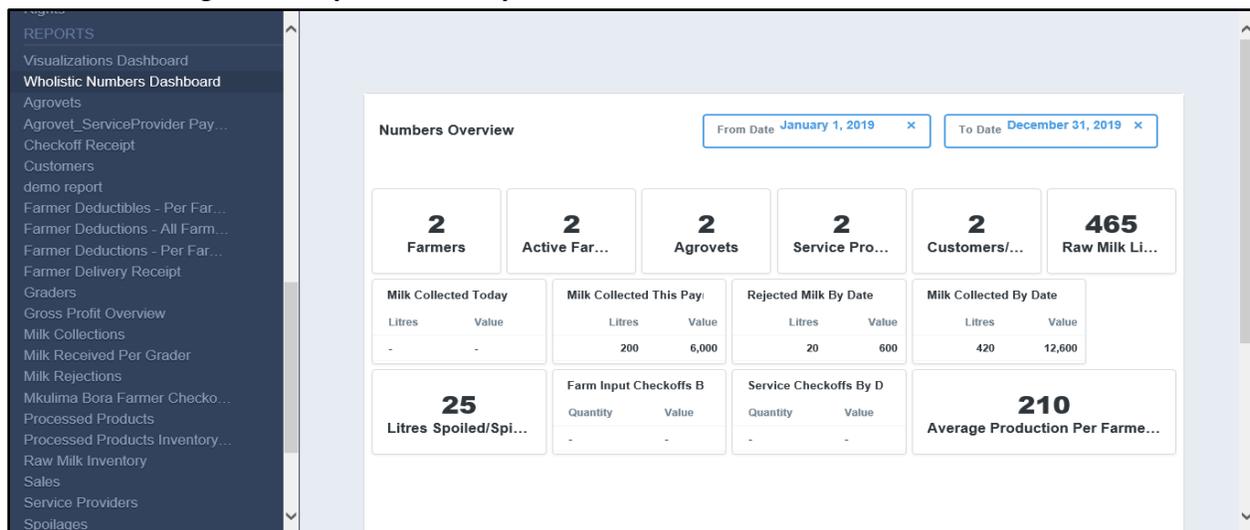


Figure 38: Wholistic Number Dashboard

Agro vets Service provider Payment

To view agro vets and service provider payment report; **Go to Reports>Select Agro vets/Service Provider Payment report**, select payroll date, select the agro vets and service providers, select excel or PDF select export. The report gives details of how much needs to be paid to each specific agro vet or service provider. The payments come from farmer checkoff of Farm Inputs and Services.

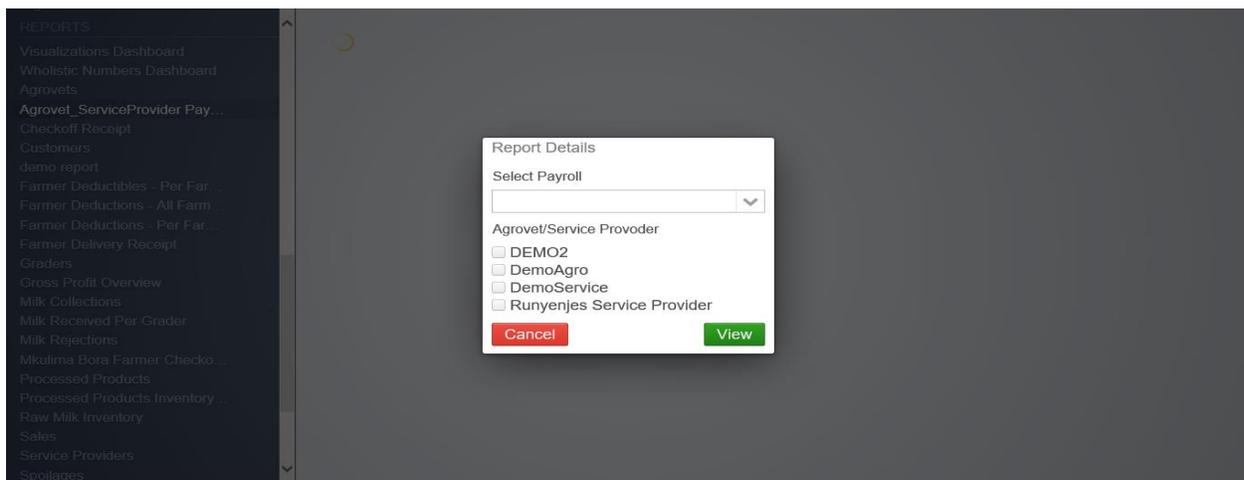


Figure 39: Agro vets Service provider Payment

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Check off receipt

To generate check off receipts; **Go to Reports>Select Check off receipt**, enter receipt number, select excel or PDF select export. The checkoff receipts gives the details of inputs of services that were purchased for that checkoff receipt.

Milk Collections

To view milk collections; Go to Reports> Milk Collection, select the date period, select excel or PDF select export. The report will give all the total of milk collected and value for that date period selected.

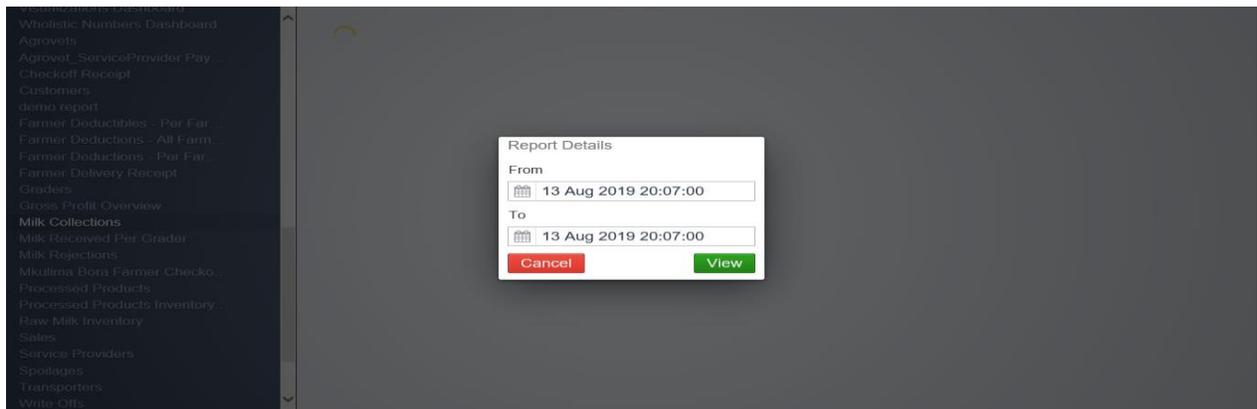


Figure 40: Milk Collections

Farmer Delivery Receipt

To view Delivery Receipt; **Go to Reports> Farmer Delivery Receipt**, select the date period, select the farmer, select excel or PDF select export.



Figure 41: Delivery Receipt

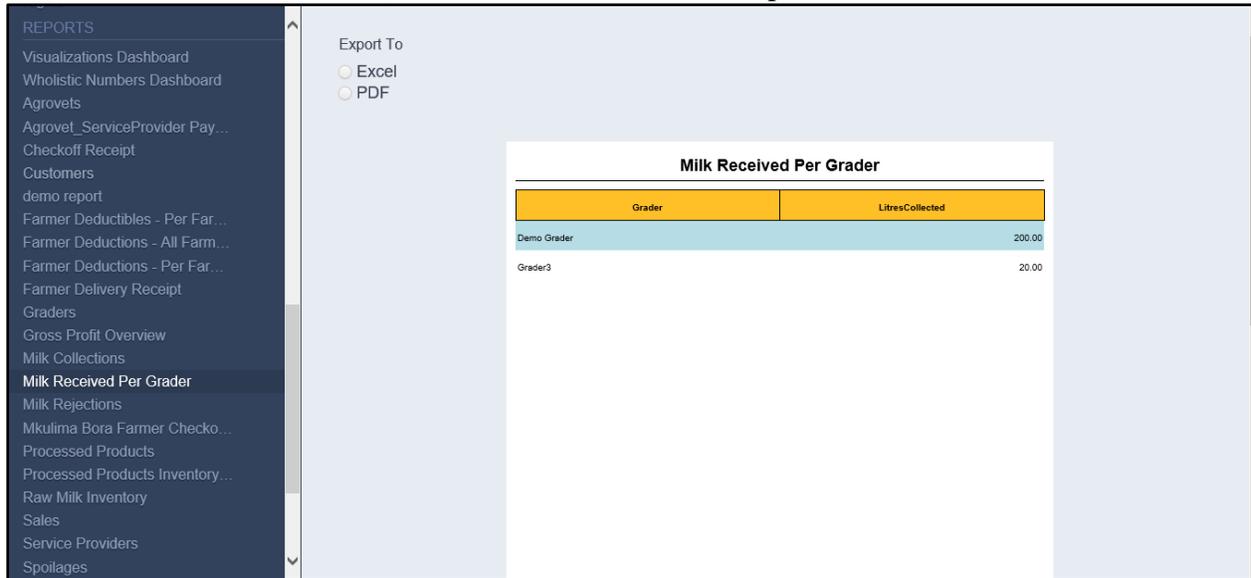
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Milk Received per Grader

To view Milk Received per Grader; Go to Reports>Select Milk Received per Grader, select from and to dates, select view, select excel or PDF select export.



REPORTS

- Visualizations Dashboard
- Wholistic Numbers Dashboard
- Agrovets
- Agrovet_ServiceProvider Pay...
- Checkoff Receipt
- Customers
- demo report
- Farmer Deductibles - Per Far...
- Farmer Deductions - All Farm...
- Farmer Deductions - Per Far...
- Farmer Delivery Receipt
- Graders
- Gross Profit Overview
- Milk Collections
- Milk Received Per Grader**
- Milk Rejections
- Mkulima Bora Farmer Checko...
- Processed Products
- Processed Products Inventory...
- Raw Milk Inventory
- Sales
- Service Providers
- Spoilages

Export To

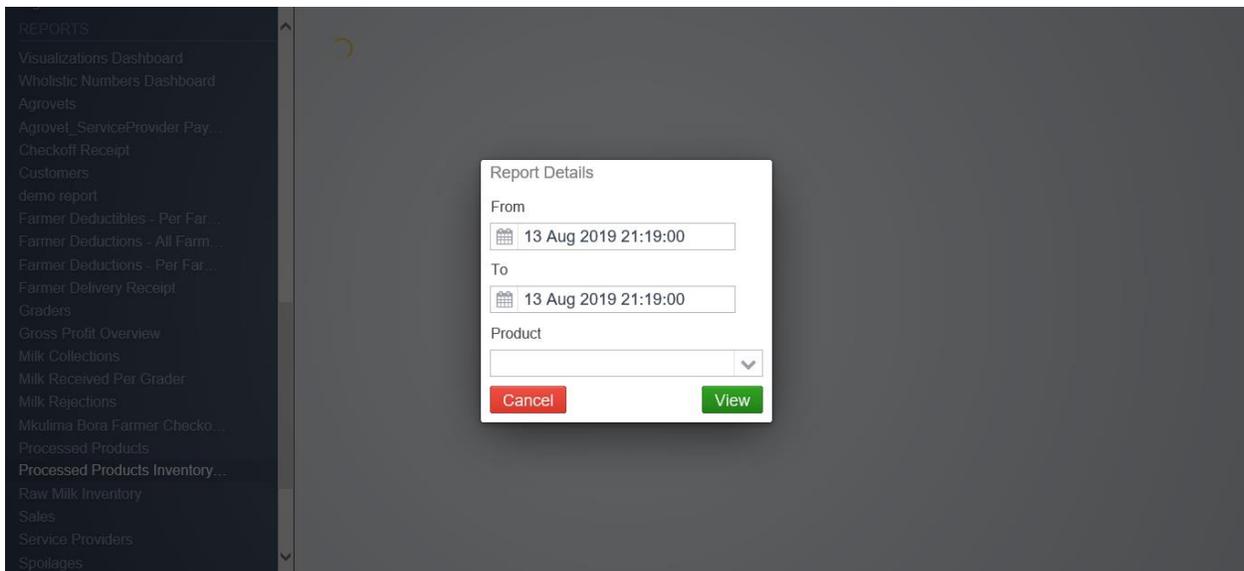
- Excel
- PDF

Grader	LitresCollected
Demo Grader	200.00
Grader3	20.00

Figure 42: Milk Received per Grader

Processed Products Inventory

To view Processed Products Inventory report; Go to Reports>Select Processed Products Inventory report, select from and to dates, select the product, select view, select excel or PDF select export.



REPORTS

- Visualizations Dashboard
- Wholistic Numbers Dashboard
- Agrovets
- Agrovet_ServiceProvider Pay...
- Checkoff Receipt
- Customers
- demo report
- Farmer Deductibles - Per Far...
- Farmer Deductions - All Farm...
- Farmer Deductions - Per Far...
- Farmer Delivery Receipt
- Graders
- Gross Profit Overview
- Milk Collections
- Milk Received Per Grader
- Milk Rejections
- Mkulima Bora Farmer Checko...
- Processed Products
- Processed Products Inventory...**
- Raw Milk Inventory
- Sales
- Service Providers
- Spoilages

Report Details

From

To

Product

Figure 43: Processed Products Inventory

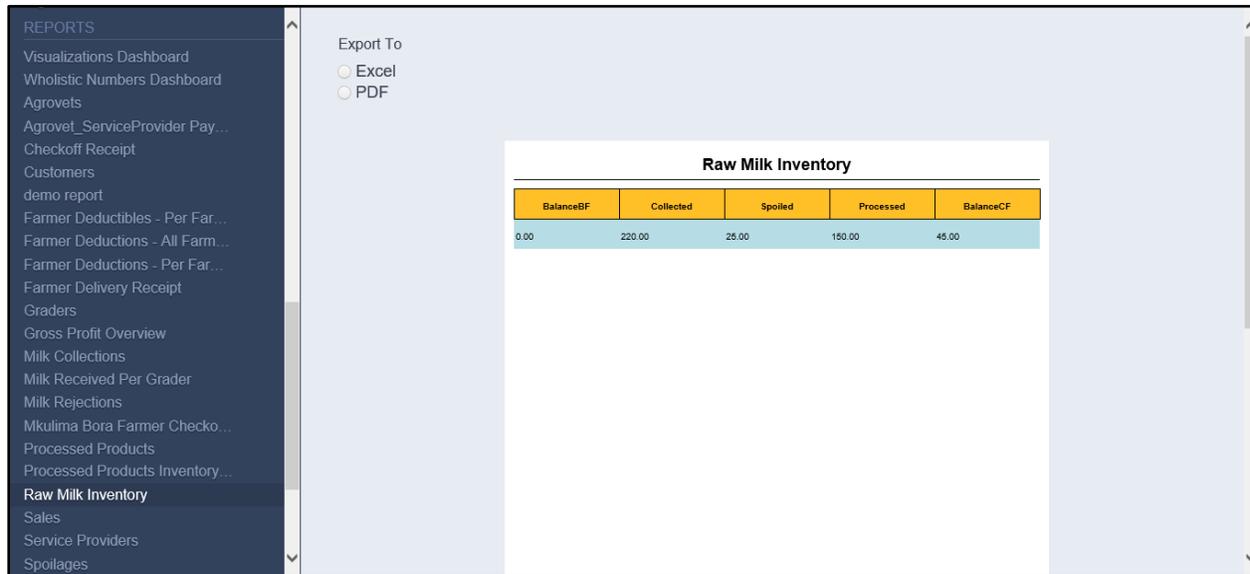
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Raw Milk Inventory

To view Raw Milk Inventory report; **Go to Reports>Select Raw Milk Inventory report**, select from and to dates, select view, select excel or PDF select export.



BalanceBF	Collected	Spoiled	Processed	BalanceCF
0.00	220.00	25.00	190.00	45.00

Figure 44: Raw Milk Inventory

Farmers Deductibles reports

To view Farmers Deductibles reports; **Go to Reports>Select Farmers Deductibles reports**, select from and to dates, select the farmer, select view, select excel or PDF select export.

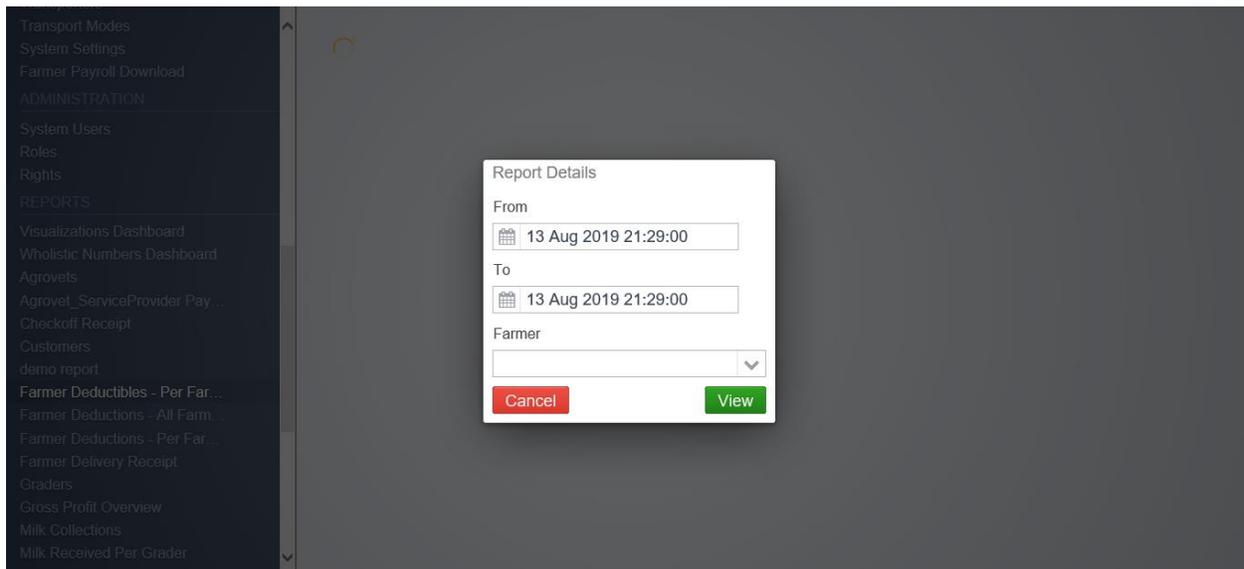


Figure 45: Farmers Deductibles reports

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Sales Report

To view sales report; **Go to Reports>Select Sales report**, select from and to dates, select sale people, select the products, select view, select excel or PDF select export.

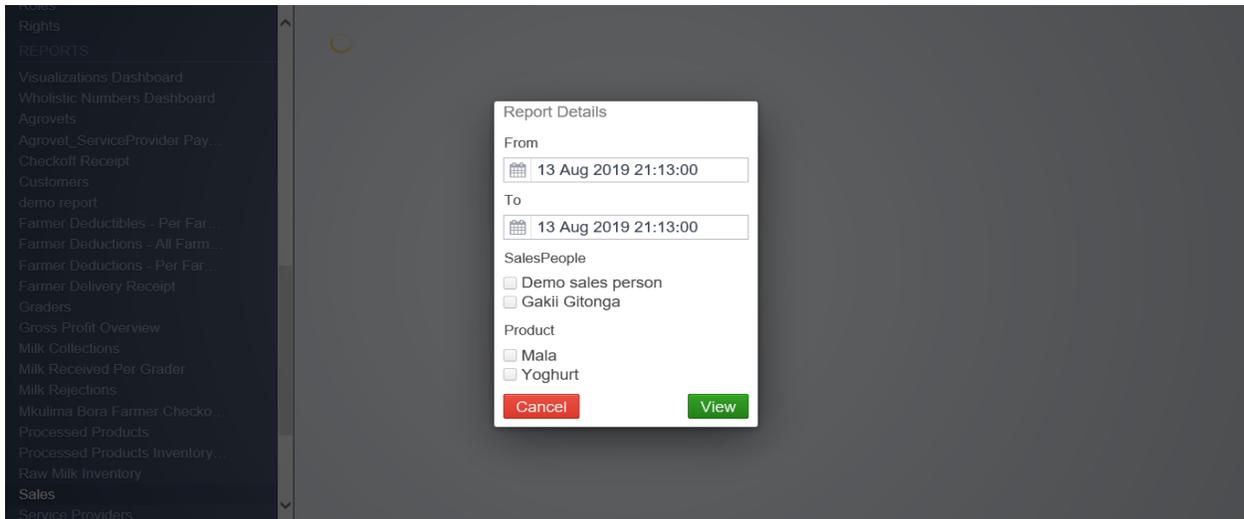
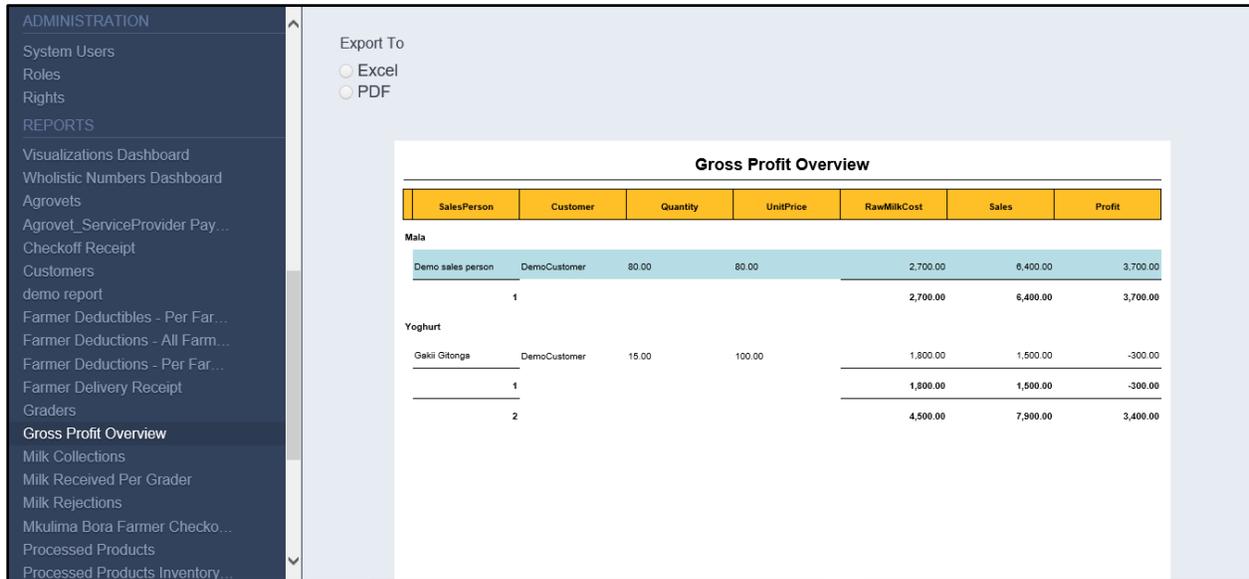


Figure 46: Sales Report

Gross Profit View Report

To view gross profit report; **Go to Reports>Select Gross Profit**, select from and to dates, select view, select excel or PDF select export



SalesPerson	Customer	Quantity	UnitPrice	RawMilkCost	Sales	Profit
Mala						
Demo sales person	DemoCustomer	80.00	80.00	2,700.00	6,400.00	3,700.00
	1			2,700.00	6,400.00	3,700.00
Yoghurt						
Gakii Gitonga	DemoCustomer	15.00	100.00	1,800.00	1,500.00	-300.00
	1			1,800.00	1,500.00	-300.00
	2			4,500.00	7,900.00	3,400.00

Figure 47: Gross Profit View Report

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com

Milk Rejections

To generate Milk Rejections; **Go to Reports>Select Milk Rejections**, select from and to dates, select view, select excel or PDF select export.

Services Report

To generate services; **Go to Reports>Select Services report**, select excel or PDF select export.

Service Providers Report

To generate service providers report; **Go to Reports>Select Service Providers report**, select excel or PDF select export.

Transporters Report

To generate Transporters report; **Go to Reports>Select Transporter report**, select excel or PDF select export.

Graders Report

To generate Graders report; **Go to Reports>Select Graders report**, select excel or PDF select export.

Spoilages

To generate Spoilages report; **Go to Reports>Select Spoilages**, select date period, select excel or PDF select export.

Write offs

To generate Write offs report; **Go to Reports>Select Write offs**, select date period, select excel or PDF select export.

Goods Report

To generate goods report; **Go to Reports>Select Goods report**, select excel or PDF select export

Processed Products

To generate Processed Products report; **Go to Reports>Select Processed Products**, select date period, select excel or PDF select export.

Report Builder

The report builder is a tool to dynamically create reports. It allows for continuous information generation as reports without recompiling the application.

The report builder uses standard SQL statements to fetch and display data, and as such, requires the creator of reports to have basic SQL knowledge.

Report Creation

To create a report

- Navigate to the report builder menu
- Click New Report
- Select whether the report should be in Portrait or Landscape mode
- Under Query, type the SQL query to fetch the data
- Any user input parameters required should be put within the { } braces
- Under columns, type the columns (that are returned by the query) to be displayed, in order, by the report

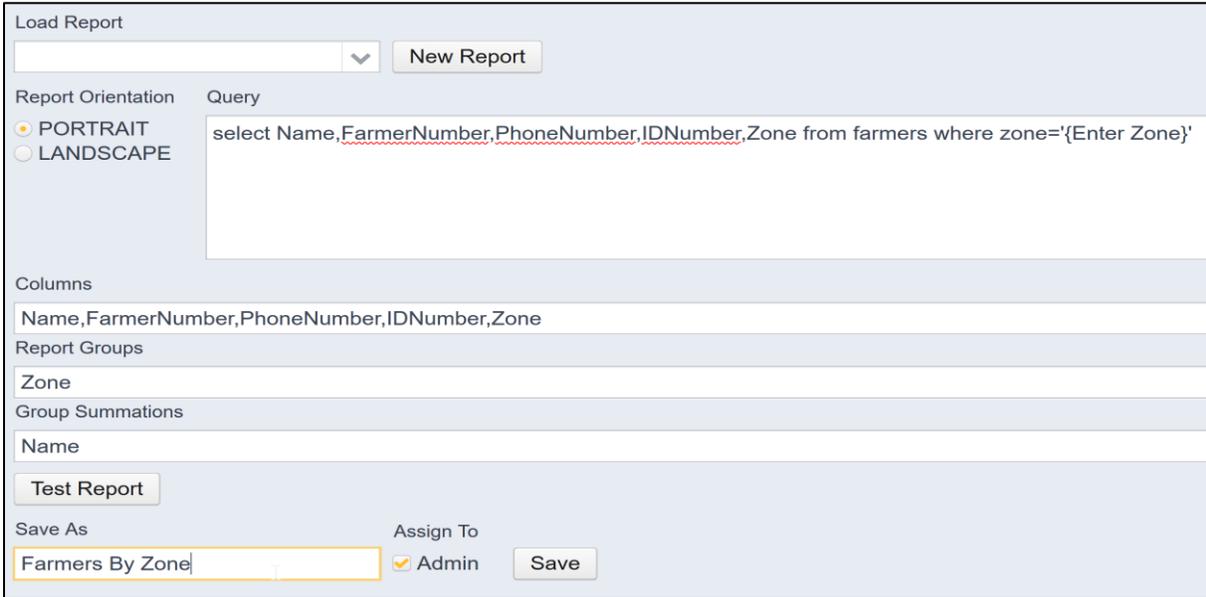
Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com

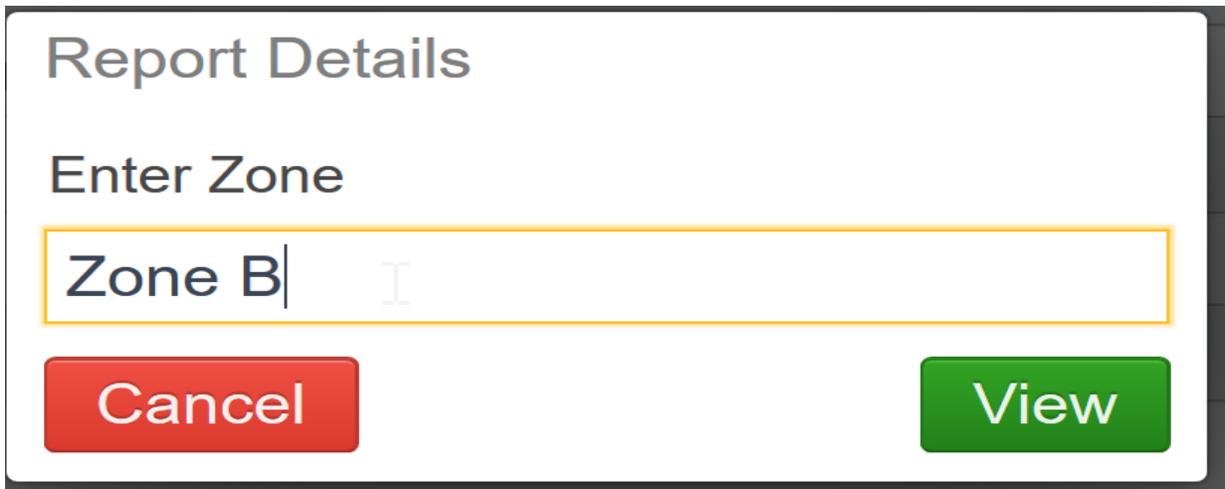
- Optionally, Under groups, type the columns that should be used as group values
- Under summations, type the values that would be displayed after every group and at the end of the report
- Test the report by clicking Test Report
- Select the roles that are allowed to view the report
- Type the name of the report and click Save

A sample report is shown in next table below;



The screenshot shows the 'Load Report' interface. At the top, there is a dropdown menu and a 'New Report' button. Below this, the 'Report Orientation' section has two radio buttons: 'PORTRAIT' (selected) and 'LANDSCAPE'. The 'Query' field contains the SQL statement: `select Name, FarmerNumber, PhoneNumber, IDNumber, Zone from farmers where zone='{Enter Zone}'`. The 'Columns' field contains: `Name, FarmerNumber, PhoneNumber, IDNumber, Zone`. The 'Report Groups' field contains: `Zone`. The 'Group Summations' field contains: `Name`. At the bottom, there is a 'Test Report' button, a 'Save As' field with the text 'Farmers By Zone', an 'Assign To' section with a checked 'Admin' checkbox, and a 'Save' button.

Figure 48: Report Builder Sample



The screenshot shows a 'Report Details' dialog box. It has a title 'Report Details' and a subtitle 'Enter Zone'. Below the subtitle is a text input field containing 'Zone B'. At the bottom of the dialog, there are two buttons: a red 'Cancel' button on the left and a green 'View' button on the right.

Figure 49: Viewing Report

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com

Contact us

Dicova Africa Group Ltd and Partners
Machera Court Apt A4, Komo Lane, Wood Avenue
P.O Box 8957---00300, Nairobi – Kenya
Cell+254 713 762838
Email: info@dicovaafricaconsulting.com
Website: <http://www.dicovaafricaconsulting.com>
Contact Person: Gregory Sikumba
Email: gsikumba@dicovaafricaconsulting.com

Or

Solidaridad East and Central Africa
FRANCIS MALECHE SHIVONJE
PROJECT MANAGER – FOOD FOR ALL PROJECT
Kirichwa Road, Kilimani Business Centre, Nairobi, Kenya
PHONE+254 716 666 862 +254 721 217 450

Suite A4, Machera Court, Komo Lane, Wood Avenue, Kilimani,

P.O. Box 8957- 00300, Nairobi, Kenya.

Email: info@dicovaafricaconsulting.com. www.dicovaafricaconsulting.com