

# Phase 3: Data Modeling & Relationships

## AgriConnect

Salesforce-Based Farmer Support & Marketplace System

### Step 1: Standard & Custom Objects

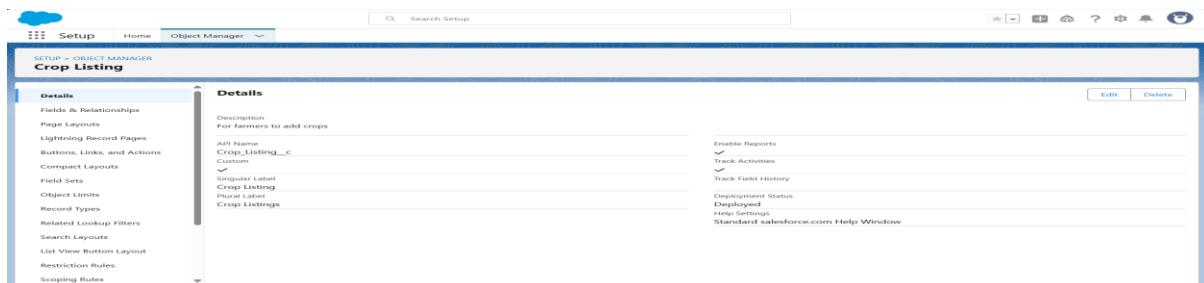
#### Standard Objects:

- Account: This object stored details of farmers, vendors, and organizations participating in the platform. It captured general information such as name, contact details, and location.
- User: This object managed login credentials, user profiles, and roles, ensuring that access permissions were maintained across the system.

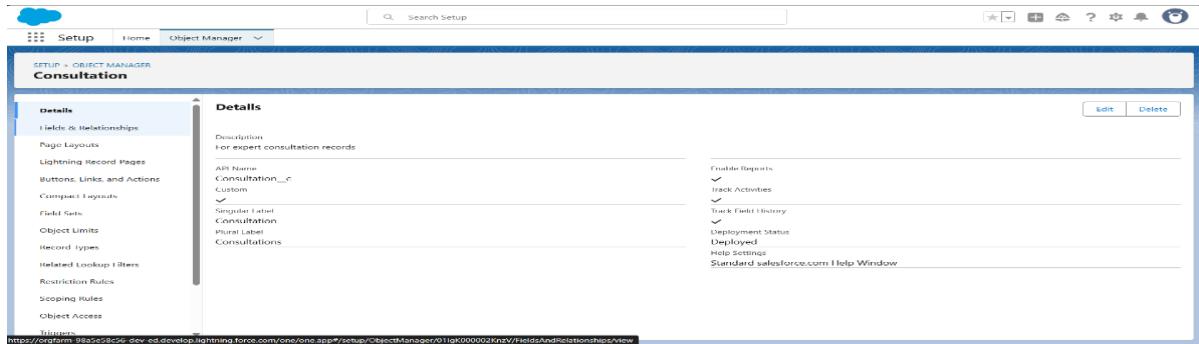
#### Custom Objects:

Several custom objects were created to manage application-specific data. These objects allowed the platform to handle crop listings, consultations, knowledge articles, and orders efficiently. The custom objects created were:

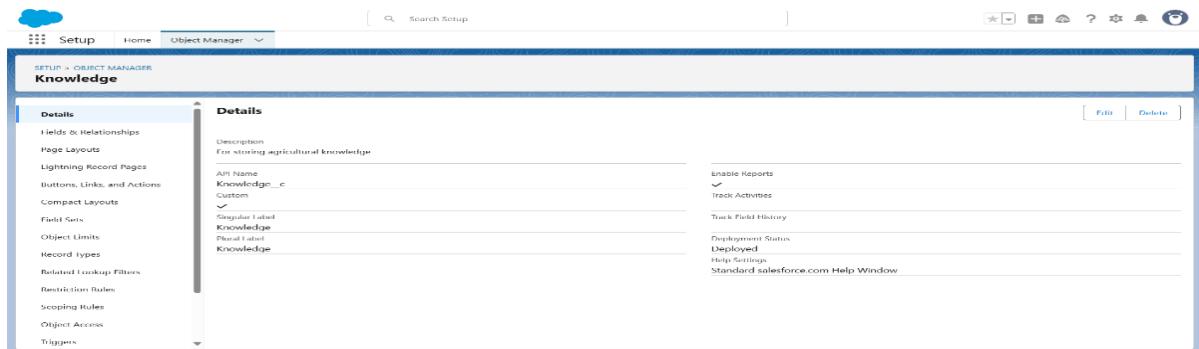
- **CropListing\_c** – Stored information about farmers' crop listings, including crop name, type, quantity, price per unit, state, district, and farmer details.



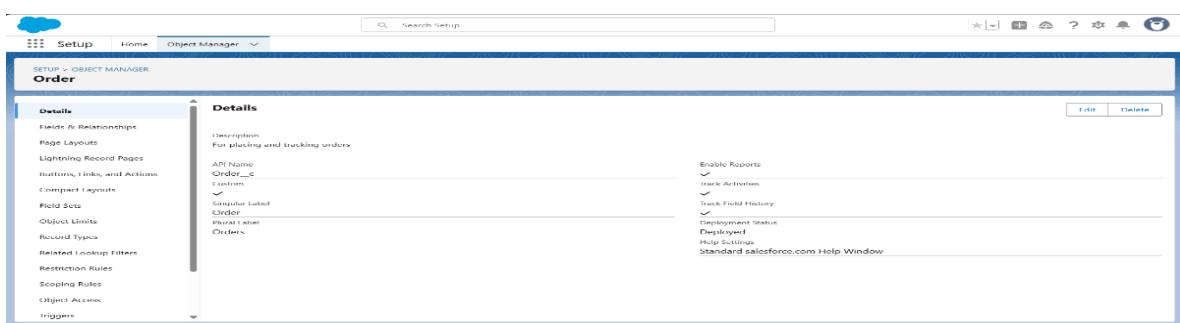
- **Consultation\_c** – Managed consultation sessions between farmers and experts, recording consultation type, description, cost, rating, and associated farmer and expert information.



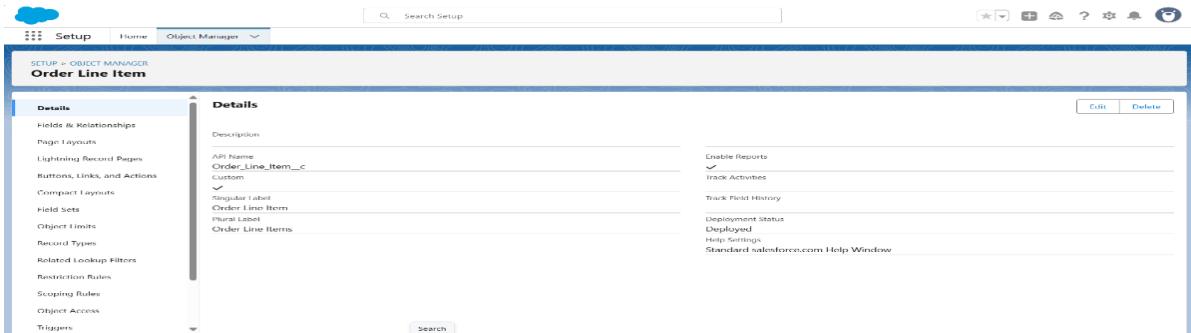
- **Knowledge\_c** – Contained knowledge resources such as articles and guides. Each record captured the title, type (article or guide), content, and the author.



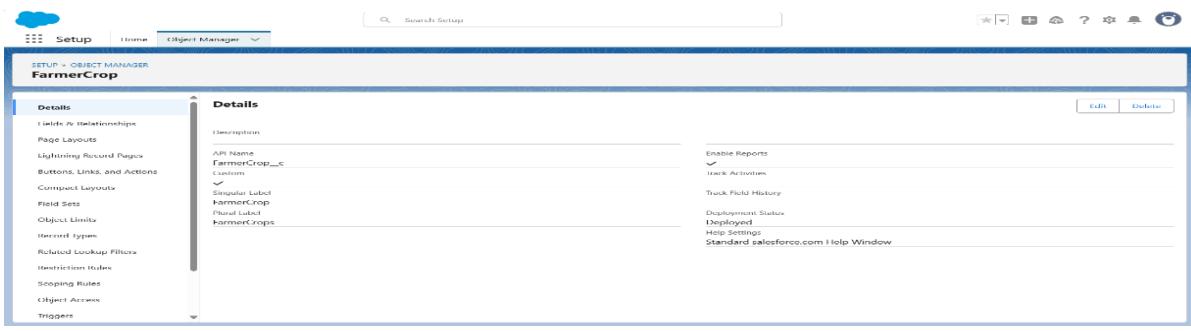
- **Orders\_c** – Recorded orders placed by farmers, including order number, date, and total amount.



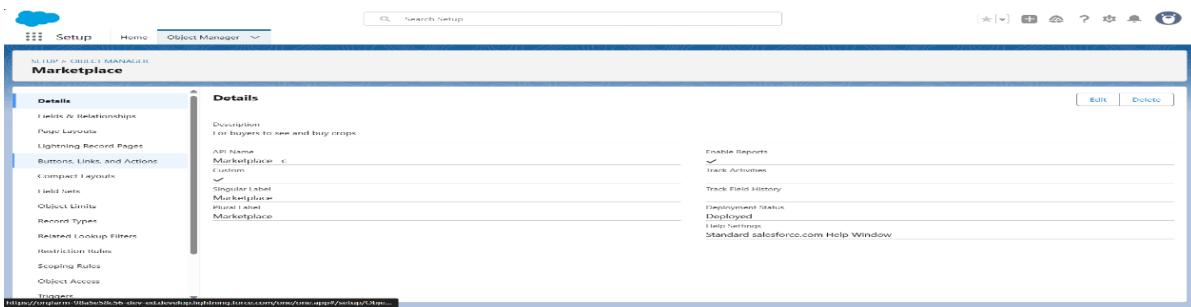
- **OrderLineItem\_\_c** – Represented individual items within an order, capturing product details, quantity, and price, and maintaining a master-detail relationship with Orders\_\_c.



- **FarmerCrop\_\_c** – Served as a junction object linking farmers to their respective crops, establishing many-to-many relationships between Account and CropListing\_\_c.



- **Marketplace\_\_c** – Represented the central hub for trade activities, capturing marketplace details such as name, type (online/local), location, and linked farmer/vendor records, while maintaining relationships with CropListing\_\_c and Orders\_\_c for smooth transactions.



## Step 2: Fields

Each object was configured with fields to store necessary details. A combination of **Text**, **Number**, **Currency**, **Picklist**, **Lookup**, and **Master-Detail** fields were used. Validation rules ensured data accuracy.

### ➤ CropListing\_\_c

- Crop\_Name\_\_c (Text)
- Crop\_Type\_\_c (Picklist: Fruits, Vegetables, Grains, etc.)
- Quantity\_\_c (Number)
- Price\_Per\_Unit\_\_c (Currency)
- State\_\_c (Picklist)
- District\_\_c (Picklist – dependent on State)
- Farmer\_\_c (Lookup → Account)

The screenshot shows the Salesforce Object Manager interface for the 'Crop Listing' object. The left sidebar contains navigation links for Setup, Home, and Object Manager, along with a search bar at the top. The main area displays the 'Fields & Relationships' section for the 'Crop Listing' object. The table lists 12 items, sorted by Field Label. The columns include FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The indexed status is checked for all fields except 'Created By'. The fields listed are: Created By (CreatedById, Lookup(User)), Crop Listing Name (Name, Text(80)), Crop\_\_c (Crop\_\_c, Picklist), District\_\_c (District\_\_c, Lookup(Address)), Farmer (Farmer\_\_c, Lookup(Account)), Farmer\_\_c (Farmer\_\_c, Lookup(Account)), Last Modified By (LastModifiedById, Lookup(User)), Owner (OwnerId, Lookup(User,Group)), Price\_\_c (Price\_\_c, Currency(16, 2)), and Quantity\_\_c (Quantity\_\_c, Number(18, 0)).

This screenshot shows the same 'Fields & Relationships' section for the 'Crop Listing' object, but with a different set of fields listed. The indexed status is checked for all fields. The fields listed are: District\_\_c (District\_\_c, Lookup(Address)), Farmer (Farmer\_\_c, Lookup(Account)), Farmer\_\_c (Farmer\_\_c, Lookup(Account)), Last Modified By (LastModifiedById, Lookup(User)), Owner (OwnerId, Lookup(User,Group)), Price\_\_c (Price\_\_c, Currency(16, 2)), Quantity\_\_c (Quantity\_\_c, Number(18, 0)), Record Type (RecordTypeId, Record Type), Status\_\_c (Status\_\_c, Picklist), and Unit\_\_c (Unit\_\_c, Picklist).

### ➤ Consultation\_\_c

- Consultation\_Type\_\_c (Picklist: Soil, Fertilizer, Pest Control, etc.)

- Description\_\_c (Long Text Area)
- Cost\_\_c (Currency)
- Rating\_\_c (Number, 1–5)
- Farmer\_\_c (Lookup → Account)
- Expert\_\_c (Lookup → User)

## ➤ Knowledge\_\_c

- Title\_\_c (Text)
- Type\_\_c (Picklist: Article, Guide, Tutorial)
- Content\_\_c (Rich Text Area)
- Author\_\_c (Lookup → User)

## ➤ Orders\_c

- Order\_Number\_c (Auto Number)
- Order\_Date\_c (Date)
- Total\_Amount\_c (Currency)
- Farmer\_c (Lookup → Account)

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Buyer_c	Buyer_c	Lookup(Account)		✓
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Order Name	Name	Auto Number		✓
Order Date_c	Order_Date_c_c	Date		
Order ID_c	Order_ID_c_c	Auto Number		
Order Status_c	Order_Status_c_c	Picklist		
Owner	OwnerId	Lookup(User,Group)		✓
Payment Status_c	Payment_Status_c_c	Picklist		
Record Type	RecordTypeId	Record Type		✓
Total Amount_c	Total_Amount_c_c	Currency(18, 0)		

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Buyer_c	Buyer_c	Lookup(Account)		✓
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Order Name	Name	Auto Number		✓
Order Date_c	Order_Date_c_c	Date		
Order ID_c	Order_ID_c_c	Auto Number		
Order Status_c	Order_Status_c_c	Picklist		
Owner	OwnerId	Lookup(User,Group)		✓
Payment Status_c	Payment_Status_c_c	Picklist		
Record Type	RecordTypeId	Record Type		✓
Total Amount_c	Total_Amount_c_c	Currency(18, 0)		

## ➤ OrderLineItem\_c

- Product\_c (Text)
- Quantity\_c (Number)
- Price\_c (Currency)
- Order\_c (Master-Detail → Orders\_c)

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Order	Order_c	Master-Detail(Order)		✓
Order Line Item Name	Name	Auto Number		✓
Order_c	Order_c	Master-Detail(Order)		✓
Quantity_c	Quantity_c_c	Number(10, 2)		
UnitPrice_c	UnitPrice_c_c	Currency(16, 2)		

## ➤ FarmerCrop\_\_c

- Farmer\_\_c (Lookup → Account)
- Crop\_\_c (Lookup → CropListing\_\_c)

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Area_Planted__c	Area_Planted_c__c	Number(18, 0)		
Created By	CreatedById	Lookup(User)		
Crop Listing	Crop_Listing__c	Master-Detail(Crop Listing)		
Farmer	Farmer_c	Master-Detail(Account)		
FarmerCrop Name	Name	Auto Number		
Last Modified By	LastModifiedById	Lookup(User)		
Season__c	Season_c__c	Picklist		

## ➤ Marketplace\_\_c

- Marketplace\_Name\_\_c (Text)
- Type\_\_c (Picklist: Local, Online)
- Location\_\_c (Text)
- Linked\_Farmer\_\_c (Lookup → Account)
- Linked\_Crop\_\_c (Lookup → CropListing\_\_c)
- Related\_Order\_\_c (Lookup → Orders\_\_c)

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Marketplace Name	Name	Text(80)		
Owner	OwnerId	Lookup(User,Group)		

## Step 3: Record Types

Record Types were created across multiple objects to differentiate business processes, simplify data entry, and provide tailored page layouts. Each record

type ensured that specific sets of values and layouts were available for users depending on the context.

### ➤ CropListing\_c

To manage different categories of crops, multiple record types were created:

- **Seasonal Crops** – For crops grown only during particular seasons (e.g., Rabi, Kharif).
- **Cash Crops** – For high-value commercial crops such as cotton, sugarcane, and tobacco.
- **Food Grains** – For staple grains like rice, wheat, and maize.
- **Fruits & Vegetables** – For perishable crops requiring fast trade.

The screenshot shows the Salesforce Object Manager interface for the 'Crop Listing' object. The left sidebar has 'Record Types' selected. The main area displays a table titled 'Record Types' with three items: 'Cash Crops', 'Hybrid Crops', and 'Organic Crops'. Each item has a 'DESCRIPTION' column with a note about its use, an 'ACTIVE' column with a dropdown arrow, and a 'MODIFIED BY' column showing 'Sai Rishitha Mukkamalla' with the date and time.

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Cash Crops		▼	Sai Rishitha Mukkamalla, 9/22/2025, 4:59 AM
Hybrid Crops		▼	Sai Rishitha Mukkamalla, 9/22/2025, 4:56 AM
Organic Crops		▼	Sai Rishitha Mukkamalla, 9/22/2025, 4:50 AM

### ➤ Consultation\_c

Consultations were categorized into free and paid services for farmers:

- **Free Consultation** – General guidance provided to farmers at no cost.
- **Paid Consultation** – Expert advice that involved service charges.
- **Government-Sponsored Consultation** – Sessions provided under government schemes.

The screenshot shows the Salesforce Object Manager interface for the 'Consultation' object. The left sidebar has 'Record Types' selected. The main area displays a table titled 'Record Types' with two items: 'Expert Consultation' and 'Farming Consultation'. The 'Expert Consultation' row has a note in the 'DESCRIPTION' column: 'used when experts provide advice.' The table includes columns for 'RECORD TYPE LABEL', 'DESCRIPTION', 'ACTIVE', and 'MODIFIED BY'.

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Expert Consultation	used when experts provide advice.	▼	Sai Rishitha Mukkamalla, 9/22/2025, 5:25 PM
Farming Consultation		▼	Sai Rishitha Mukkamalla, 9/22/2025, 5:03 AM

➤ **Knowledge** Different record types were defined for publishing structured knowledge resources:

- **Article** – Step-by-step written guidance.
- **Guide** – Detailed process documentation and tutorials.
- **Video/Multimedia Resource** – Knowledge shared in video or infographic format

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Article		✓	Sai Rishitha Mukkamalla, 9/22/2025, 9:07 AM
Guide/Manual		✓	Sai Rishitha Mukkamalla, 9/22/2025, 9:07 AM

➤ **Orders\_c**

Orders were separated based on who initiated them and their purpose:

- **Farmer Order** – Orders placed by farmers to sell their produce.
- **Buyer Order** – Orders raised by vendors or buyers to purchase crops.
- **Bulk/Wholesale Order** – Large quantity orders for distributors or government agencies.

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Retail Order		✓	Sai Rishitha Mukkamalla, 9/22/2025, 4:18 AM
Wholesale Order		✓	Sai Rishitha Mukkamalla, 9/22/2025, 4:15 AM

➤ **OrderLineItem\_c**

Order line items were categorized to manage different product entries:

- **Crop Item** – For individual crops like rice, wheat, or pulses.
  - **Fertilizer/Seed Item** – For allied agricultural products purchased along with crops.
- **FarmerCrop\_\_c** Since FarmerCrop\_\_c served as a junction object, record types helped manage multiple linkages:
- **Active Crop Assignment** – Current crops being cultivated by a farmer.
  - **Past Crop Assignment** – Historical crops that the farmer has grown.
- **Marketplace\_\_c**
- To support different trading channels, multiple record types were created:
- **Local Marketplace** – For physical/local market trading.
  - **Online Marketplace** – For digital transactions and remote buyers.
  - **Government Marketplace** – For sales conducted through government-regulated channels.

## Step 4: Page Layouts

Custom **page layouts** were created for each object to organize fields in a meaningful way and to improve user experience. The layouts ensured that critical fields were always visible, while related details were grouped logically.

- **CropListing\_\_c Page Layout** The layout displayed essential crop details in the main section for quick reference:
- **Main Section:** Crop Name, Crop Type, Quantity, Price per Unit, State, District.
  - **Related Section:** Farmer (Lookup to Account) and related records such as Orders and Marketplace entries.

The screenshots illustrate the process of managing Page Layouts for the Crop Listing object in Salesforce.

**Screenshot 1: Page Layouts**

This screen shows the list of Page Layouts for the Crop Listing object. It includes columns for Page Layout Name, Created By, and Modified By. The layouts listed are Crop Listing Layout, Hybrid Layout, and Organic Layout, all created by Navya Arre and modified by Sai Rishitha Mukkamalla.

Page Layout Name	Created By	Modified By
Crop Listing Layout	Navya Arre, 9/17/2025, 7:46 AM	Sai Rishitha Mukkamalla, 9/21/2025, 9:38 AM
Hybrid Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:13 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:13 PM
Organic Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:12 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:13 PM

**Screenshot 2: Page Layout Assignment**

This screen shows the page layout assignments for different record types and profile combinations. The table lists profiles such as Analytics Cloud Integration User, Admin, and various security profiles, along with record types like Master, Cash Crops, Hybrid Crops, and Organic Crops, and their corresponding page layout assignments.

Record Types	Master	Cash Crops	Hybrid Crops	Organic Crops
Analytics Cloud Integration User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Admin	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Anytime Integration	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Buyer Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Chatter External User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Chatter Free User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Chatter Internal User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Content Manager	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Cross Org Data Proxy User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Custom: Marketing Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Custom: Sales Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Customer Community Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Einstein Agent User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Expert Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Farmer Profile	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Force.com - Free User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Gold Partner User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout
Identity User	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout	Crop Listing Layout

**Screenshot 3: Page Layout Detail**

This screen shows the detailed configuration of the Crop Listing Detail page layout. It includes sections for Fields, Buttons, Quick Actions, and Related Lists. The layout properties pane shows fields like Crop Listing Name, Last Modified By, Record Type, and various lookup fields (Farmer, District, Price, Unit, State, Status) with their respective values and descriptions.

➤ **Consultation\_c Page Layout** The consultation layout was designed to separate consultation details from farmer and expert references:

- **Main Section:** Consultation Type, Description, Cost, Rating.
- **Related Section:** Farmer and Expert (Lookup fields), related Orders if generated.

Page Layout Name	Created By	Modified By
Consultation Layout	Navya sree, 9/17/2025, 8:25 AM	Sai Rishitha Mukkamalla, 9/21/2025, 7:16 AM
Expert Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:28 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:28 PM
Farmer Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:27 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:27 PM

Profiles	Record Types	Master	Expert Consultation	Farmer Consultation
Analytics_Cloud_Integration_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Analytics_Cloud_Security_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Anypoint_Integration	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Buyer_Profile	Consultation	Consultation Layout	Expert Layout	Farmer Layout
Chatter_External_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Chatter_Free_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Chatter_Moderator_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Customer_Profile	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Cross_Org_Data_Proxy_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Custom_Marketing_Profile	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Custom_Support_Profile	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Einstein_Agent_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Expert_Profile	Consultation	Consultation Layout	Expert Layout	Consultation Layout
Farmer_Profile	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Force_com_Ape_Subscription_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Force_com_Free_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Guest_Profile	Consultation	Consultation Layout	Consultation Layout	Consultation Layout
Identity_User	Consultation	Consultation Layout	Consultation Layout	Consultation Layout

Field	Value
Consultation Topic	Sample Text
Created By	Sai Rishitha Mukkamalla
Last Modified By	Navya sree
Rating	C
Mode	Normal
Notes	Sample Text
Status	Open

## ➤ Knowledge\_c Page Layout

The knowledge object's layout was kept simple to focus on content details:

- **Main Section:** Title, Type, Content (Rich Text), Author.
- **Related Section:** Attachments and related Consultation references (if linked).

Page Layout Name	Created By	Modified By
Article Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:32 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:33 PM
Guide Layout	Sai Rishitha Mukkamalla, 9/22/2025, 5:33 PM	Sai Rishitha Mukkamalla, 9/22/2025, 5:33 PM
Knowledge Layout	Navya sree, 9/17/2025, 8:24 AM	Navya sree, 9/17/2025, 8:24 AM

Profiles	Master	Article	Guide/Manual
Analytics Cloud Integration User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Analytics Internal User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Buyer Profile	Knowledge Layout	Knowledge Layout	Article Layout
Chatter Free User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Chatter Moderator User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Community User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Cross-Org Data Proxy User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Custom: Marketing Profile	Knowledge Layout	Knowledge Layout	Knowledge Layout
Customer Profile	Knowledge Layout	Knowledge Layout	Knowledge Layout
Custom: Support Profile	Knowledge Layout	Knowledge Layout	Knowledge Layout
Employee User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Expert Profile	Knowledge Layout	Article Layout	Knowledge Layout
Farmer Profile	Knowledge Layout	Knowledge Layout	Guide Layout
Force.com - App Subscription User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Guest User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Gold Partner User	Knowledge Layout	Knowledge Layout	Knowledge Layout
Identity User	Knowledge Layout	Knowledge Layout	Knowledge Layout

## ➤ Orders\_\_c Page Layout

The order layout grouped transactional information with farmer linkage:

- **Main Section:** Order Number, Order Date, Total Amount.
- **Related Section:** Farmer (Lookup), and a related list of OrderLineItems for detailed products.

Setup > OBJECT MANAGER Order

**Page Layouts**

PAGE LAYOUT NAME	CREATED BY	MODIFIED BY
Order Layout	Navya sree, 9/17/2025, 8:23 AM	Sai Rishitha Mukkamalla, 9/21/2025, 9:12 AM
Wholesale Layout	Sai Rishitha Mukkamalla, 9/22/2025, 4:20 AM	Sai Rishitha Mukkamalla, 9/22/2025, 4:20 AM

Setup > ORDER MANAGER Order

**Page Layout Assignment**

Profiles	Record Types	Master	Retail Order	Wholesale Order
Analytics Cloud Integration User	Order Layout	Order Layout	Order Layout	Order Layout
Analytics Cloud Integration	Order Layout	Order Layout	Order Layout	Order Layout
Buyer Profile	Order Layout	Order Layout	Order Layout	Order Layout
Chatter External User	Order Layout	Order Layout	Order Layout	Order Layout
Chatter Internal User	Order Layout	Order Layout	Order Layout	Order Layout
Chatter Moderator User	Order Layout	Order Layout	Order Layout	Order Layout
Contract Manager	Order Layout	Order Layout	Order Layout	Order Layout
Cross-Cloud Analytics User	Order Layout	Order Layout	Order Layout	Order Layout
Custom - Marketing Profile	Order Layout	Order Layout	Order Layout	Order Layout
Custom - Sales Profile	Order Layout	Order Layout	Order Layout	Order Layout
Custom - Support Profile	Order Layout	Order Layout	Order Layout	Order Layout
Customer User	Order Layout	Order Layout	Order Layout	Order Layout
Expert Profile	Order Layout	Order Layout	Order Layout	Order Layout
Farmers Profile	Order Layout	Order Layout	Order Layout	Order Layout
Force.com - App Subscription User	Order Layout	Order Layout	Order Layout	Order Layout
Force.com - Free User	Order Layout	Order Layout	Order Layout	Order Layout
Gold Partner User	Order Layout	Order Layout	Order Layout	Order Layout
Identity User	Order Layout	Order Layout	Order Layout	Order Layout

Setup > OBJECT MANAGER Order

**Page Layout Properties**

**Fields**

Section	Last Modified By	Order Name	Total_Amount__c
Blank Space	Order Date__c	Owner	Payment_Status__c
Buyer__c	Order_ID__c	Created By	Record Type

**Order Detail**

Information (Header visible on edit only)	Owner	Sample Text
Order Name: GUN 2024 Q12024 Order Date: 9/22/2025 Buyer__c: Sample Text Payment_Status__c: Sample Text Total_Amount__c: \$123.45		

## ➤ OrderLineItem\_\_c Page Layout

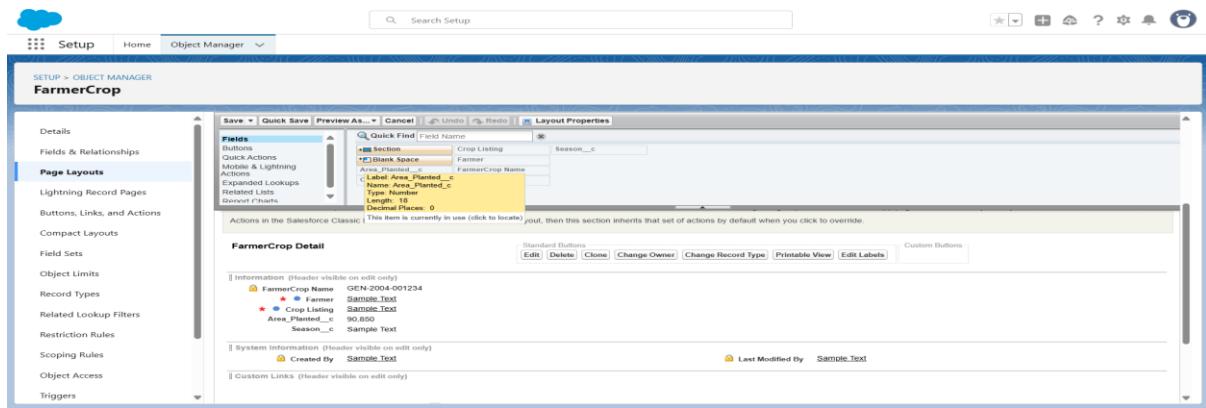
The detail layout focused on product-level order data:

- **Main Section:** Product, Quantity, Price.
- **Related Section:** Parent Order (Master-Detail), related marketplace references.

## ➤ FarmerCrop\_\_c Page Layout

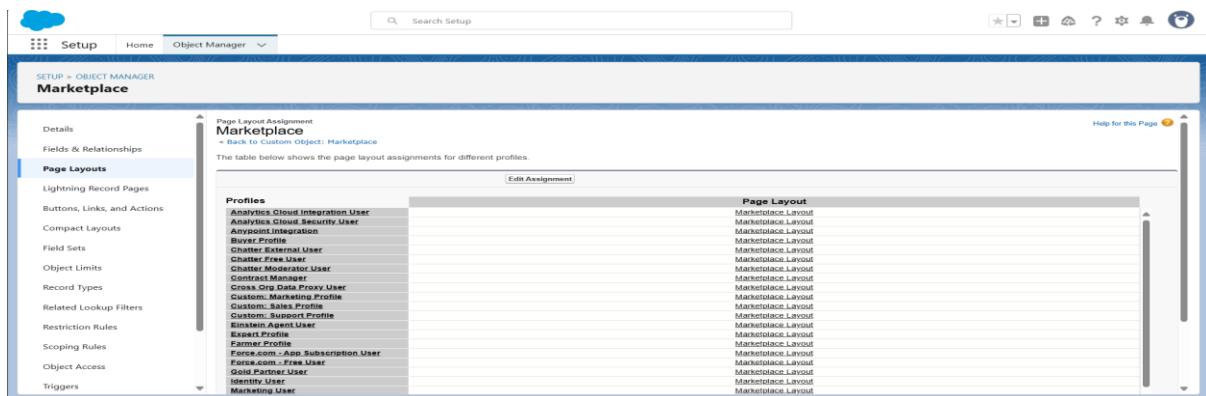
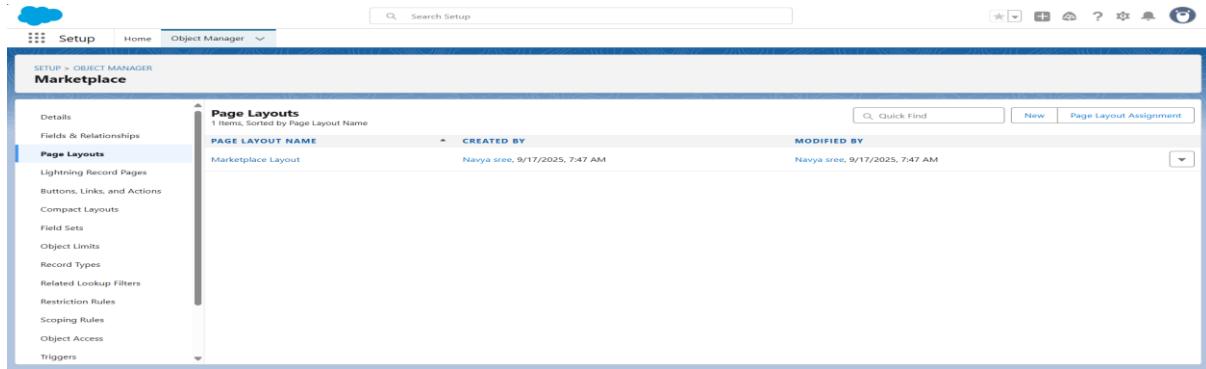
As a junction object, the layout was simplified to just show relationships:

- **Main Section:** Farmer, Crop.
- **Related Section:** Historical references or past assignments linked to records.



➤ **Marketplace\_\_c Page Layout** The marketplace layout was designed to capture both marketplace information and linked transactions:

- **Main Section:** Marketplace Name, Type, Location.
- **Related Section:** Linked Farmer, Linked Crop, Related Order.



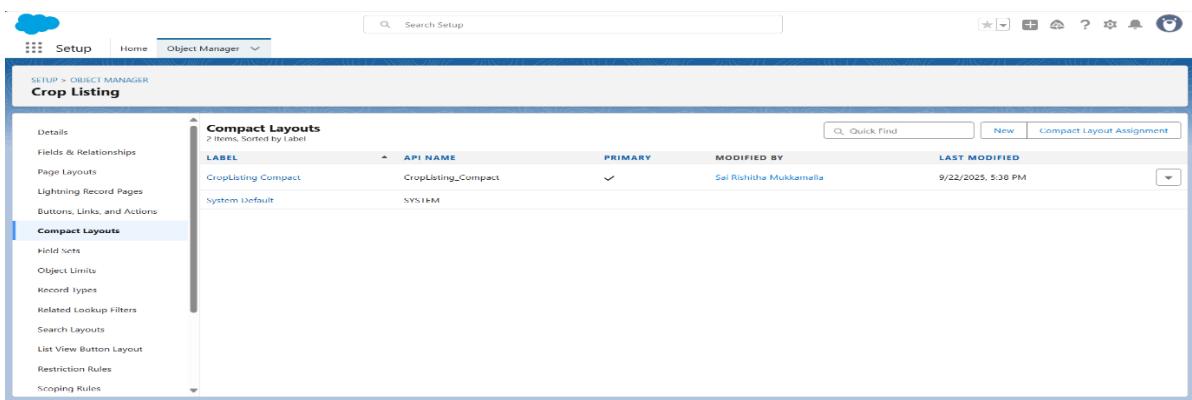
## Step 5: Compact Layouts

Compact layouts were created to define which fields should appear in the **highlights panel** (top of a record page) and in **Salesforce mobile app views**. This allowed users to quickly see the most important information at a glance without scrolling through the entire record.

## ➤ **CropListing\_c Compact Layout**

The compact layout displayed the essential details of each crop listing:

- Crop Name
- Crop Type
- Quantity
- Price Per Unit



## Step 6: Schema Builder

The **Schema Builder** was used to visualize and manage the data model of the AgriConnect platform. This tool provided a graphical interface where all **standard** and **custom objects**, their fields, and relationships were displayed in a single diagram.

Using Schema Builder made it easier to:

- View **object relationships** (Lookup, Master-Detail, and Junction).
- Drag and arrange objects visually for better understanding.
- Inspect fields, record types, and relationships directly from the diagram.
- Add new fields quickly without going through Object Manager.

## ➤ **Objects Displayed in Schema Builder**

The following objects were included in the schema visualization:

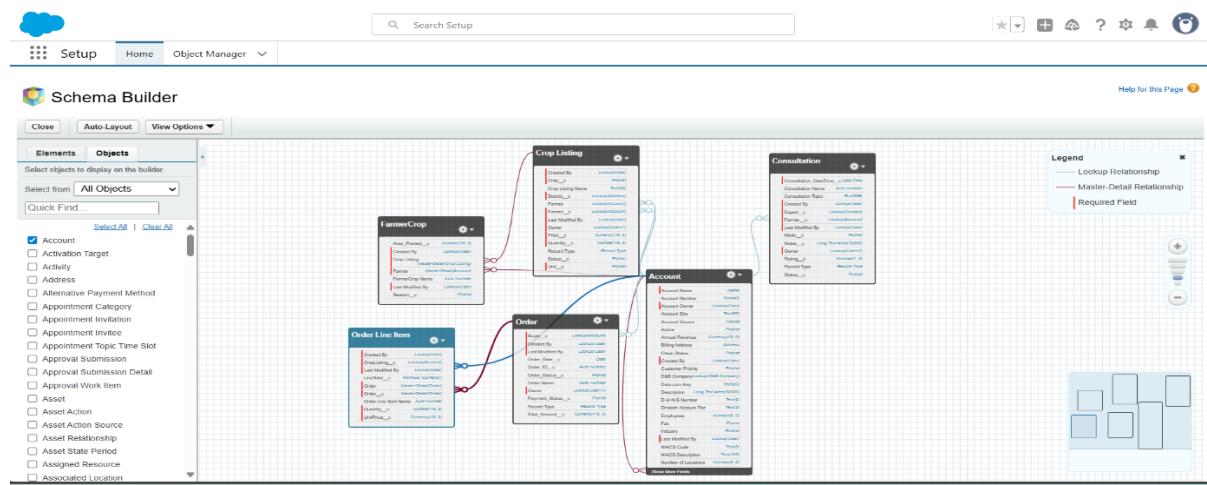
- **Standard Objects:** Account, User.
- **Custom Objects:**

- CropListing\_c
  - Consultation\_c
  - Knowledge\_c
  - Orders\_c
  - OrderLineItem\_c
  - FarmerCrop\_c
  - Marketplace\_c

## ➤ Relationships Highlighted

- **CropListing\_\_c → Farmer (Lookup to Account)**
  - **Consultation\_\_c → Farmer & Expert (Lookup)**
  - **Orders\_\_c → Farmer (Lookup)**
  - **OrderLineItem\_\_c → Orders (Master-Detail)**
  - **FarmerCrop\_\_c → Farmer (Lookup) + Crop (Lookup) [Junction Object]**
  - **Marketplace\_\_c → Farmer, Crop, Orders (Lookup)**

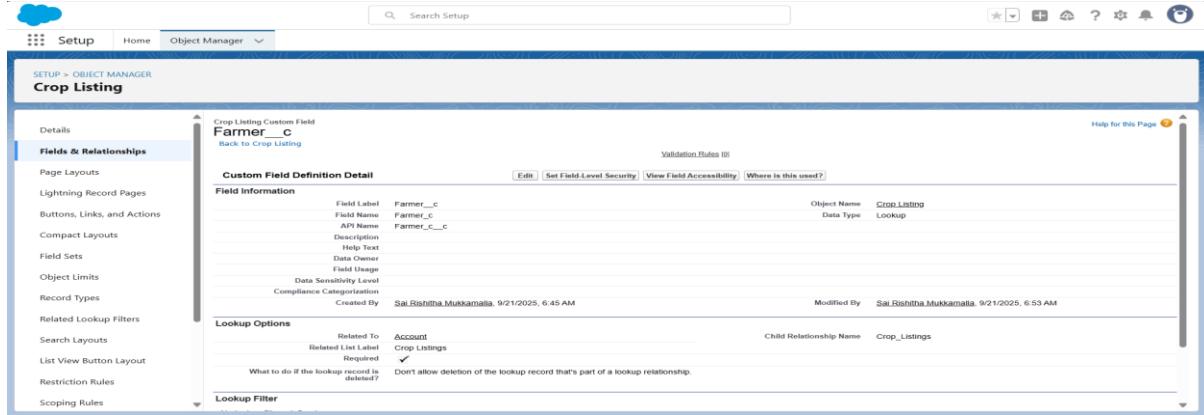
This provided a **complete visual map** of how different entities interacted in the system, which is useful for administrators, developers, and business users.



## Step 7: Lookup vs Master-Detail vs Hierarchical Relationships

- A **lookup relationship** is a loosely coupled link between two objects, where the child record can exist without a parent.
    - Examples in AgriConnect:

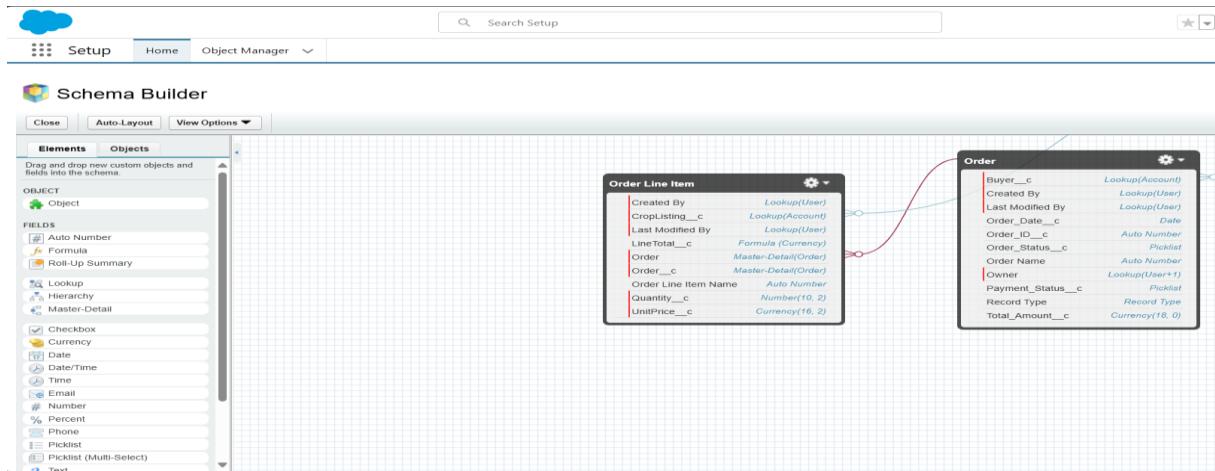
- CropListing\_\_c → Farmer (Lookup to Account)
- Consultation\_\_c → Farmer (Lookup) and Expert (Lookup to User)
- Marketplace\_\_c → Farmer, Crop, and Orders (Lookup fields)



➤ **Master-Detail Relationship** A **master-detail relationship** is a tightly coupled link, where the detail record's lifecycle depends on the master record. Deleting the master deletes all details.

- **Example in AgriConnect:**

- OrderLineItem\_\_c → Orders\_\_c (Master-Detail). Each order can have multiple line items, and deleting an order removes its items.



➤ **Hierarchical Relationship** A **hierarchical relationship** is a special lookup available only for the **User** object, used to define a reporting structure between users.

- **Example in AgriConnect:**

- Within the **User object**, hierarchical relationships were set up to represent reporting (e.g., Regional Manager supervising Experts).

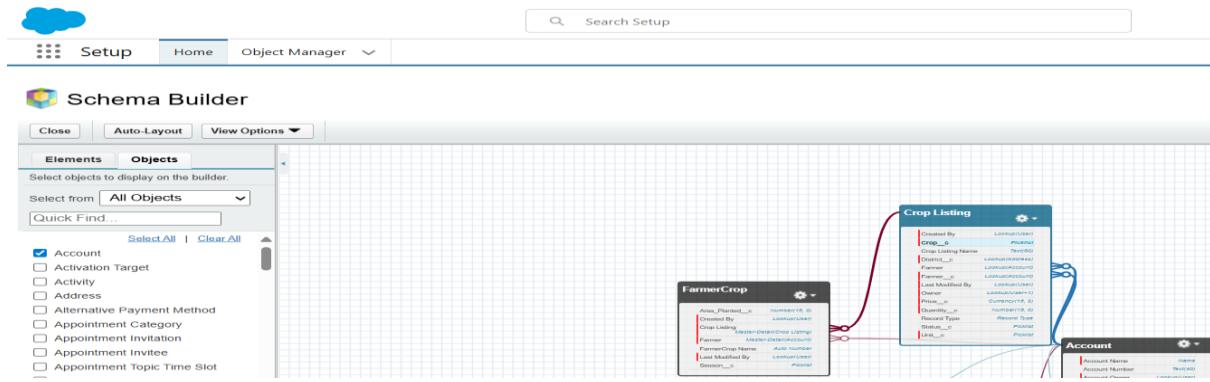
The screenshot shows the Salesforce Setup interface under the Object Manager for the Order object. The left sidebar has a 'Record Types' section selected. The main area shows the 'Retail Order' record type with its details: Record Type Label (Retail Order), Record Type Name (Retail\_Order), and Record Type Description (Retail Order). Below this, there's a table for 'Picklists Available for Editing' with two entries: 'Action' and 'Field'. The 'Action' column has 'Edit' links for 'Order\_Status\_\_c' and 'Payment\_Status\_\_c'. The 'Modified Date' column shows '9/22/2025, 4:16 AM' and '9/22/2025, 4:17 AM' respectively.

## Step 8: Junction Objects

A **junction object** is used to create a **many-to-many relationship** between two objects in Salesforce. Instead of directly linking them, the junction object contains two lookup fields (or master-detail fields) that connect to each parent object. In **AgriConnect**, a junction object was created to manage the relationship between **Farmers** and **Crops**.

- Junction Object: FarmerCrop\_\_c**
- Fields:**
  - Farmer\_\_c (Lookup → Account)
  - Crop\_\_c (Lookup → CropListing\_\_c)
- Purpose:** This allows a single farmer to grow multiple crops, and the same crop to be associated with multiple farmers.

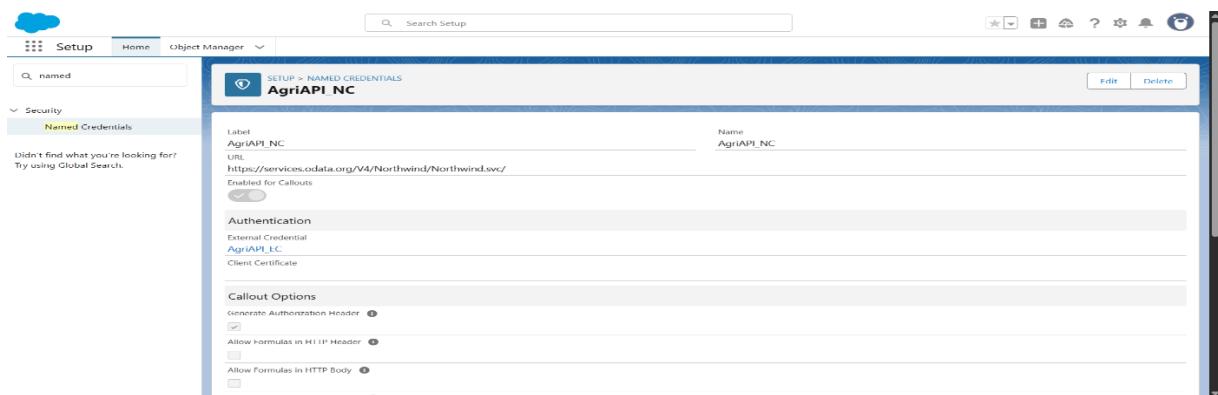
The screenshot shows the Salesforce Setup interface under the Object Manager for the FarmerCrop\_\_c junction object. The left sidebar has a 'Fields & Relationships' section selected. The main area shows the 'FarmerCrop Custom Field' definition. Under 'Field Information', it lists the field label 'Farmer', field name 'Farmer', and API name 'Farmer\_\_c'. Under 'Master-Detail Options', it shows 'Related To' as 'Account' and 'Related List Label' as 'FarmerCrops'. The 'Sharing Setting' is set to 'Reparentable Master Detail'. A note at the bottom states: 'ReadWrite: Allows users with at least ReadWrite access to the Master record to create, edit, or delete related Detail records.' There are no validation rules listed.



## Step 9: External Objects

### ➤ Named Credentials

- Named Credentials are used to **securely store authentication details** (like usernames, passwords, OAuth tokens) for connecting Salesforce to an external system. Instead of hardcoding login info, Named Credentials centralize and manage them securely.
  - In **AgriConnect**, a Named Credential was created for connecting to the **AgriWeather / Northwind OData API**.
  - **Identity Type:** Named Principal (single login for all users).
  - **Authentication Protocol:** Password Authentication (with username & password).



The screenshot shows the Salesforce Setup interface with the search bar set to 'named'. A Named Credential named 'AgriAPI\_EC' is selected. The details page shows the following information:

- Label:** AgriAPI\_EC
- Authentication Protocol:** No Authentication
- Managed Package Access:** Created By Namespace
- Related Named Credentials:** None (indicated by a placeholder image and text: 'You don't have any related named credentials.')

## ➤ External Data Source

- An **External Data Source** defines the connection to an external system. This is where Salesforce knows **where the data is stored and how to access it.**
  - **Data Source Type:** OData 2.0 (Northwind / AgriWeather API).
  - **Authentication:** Connected via the Named Credential.
  - After configuration, the **Validate and Sync** option was used to pull metadata from the external system.

The screenshot shows the Salesforce Setup interface with the search bar set to 'extern'. An External Data Source named 'AgriWeather' is selected. The configuration page includes:

- Background Sync Jobs:** A table showing one job named 'Customer, Order, Product' with status 'RUNNING'.
- Parameters:** A list of configuration options:
  - URL: <https://services.agriweather.com/v4/weather/forecast.json>
  - Connection Timeout (Seconds): 120
  - Writable External Objects:
  - High Data Volume:
  - Server Driven Pagination:
  - Request Row Count:
  - Compress Requests:

## ➤ External Objects

- Once the external data source was validated and synced, Salesforce automatically created external objects:
  - **Product\_x**
  - **Order\_x**
  - **Customer\_x**

- These behave like Salesforce objects but pull records directly from the external system in **real time**.

The top screenshot shows the 'External Objects' setup page in Salesforce. It displays a table with two rows:

Action	Label	Deployed	External Data Source	Description
Edit   Erase	Customer	<input type="checkbox"/>	AgriWeather	Customers
Edit   Erase	Product	<input type="checkbox"/>	AgriWeather	Products

The bottom screenshot shows a product record for 'Chai Test Product'. The details are as follows:

- Product Name: Chai Test Product
- Product Code: CHAI001
- Product Family: None
- Active:
- Created By: Sai Rishitha Mukkamalla, 9/22/2025, 6:50 PM
- Last Modified By: Sai Rishitha Mukkamalla, 9/22/2025, 6:50 PM
- Product Description: Organic green tea leaves

## Conclusion

- In Phase 3, I successfully designed and implemented the data model for the AgriConnect system by combining both Salesforce standard objects and custom objects that meet the project's requirements. Custom fields were created to capture business-specific data, and record types ensured that different user groups and processes are handled distinctly.
- To improve usability, page layouts and compact layouts were customized, presenting information in a clear and meaningful way for end users. The Schema Builder was used to visualize the overall data model, making it easier to understand relationships and dependencies.
- Different types of relationships—Lookup, Master-Detail, and Hierarchical—were applied appropriately, ensuring proper data linkage, roll-up summaries, and ownership behaviors. For many-to-many

requirements, junction objects were created, allowing flexible association between entities.

- Finally, External Objects were integrated through Named Credentials and External Data Sources, enabling Salesforce to display real-time data from external systems. This was validated by successfully creating and testing a sample external record (Chai Test Product).
- Overall, Phase 3 provided a complete, scalable, and integrated data model for AgriConnect, ensuring that all future processes, automations, and analytics will be built on a strong and well-structured foundation.