Commodity Accounting Perpetual Inventory Setup and Process Flows

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Overview and Settings

Grain processors may want to track the cost of grain inventory though the commodity into the manufactured good. As such, they will account for the cost of the grain through some of the perpetual inventory methods supported by Dynamics 365 and Levridge:

- FIFO
- Standard
- Moving average
- Weighted average

Together with a few more parameters the system will make inventory adjustments or postings as needed. Let's look at each of these parameters that impact what the process will do then we can walk through scenarios to get the full picture:

1. On the commodity released item, the Item model group determines the inventory model: Standard, FIFO, Moving average, or Weighted average. (There is also LIFO, LIFO date and Weighted average date options but those are not currently supported by Levridge for perpetual inventory).
2. On the commodity released item detail form in the Commodity fast fab, the 'Perpetual inventory' must be set to Yes if you want the adjustments to cost based on the contract price or landed discounts/fees. If it is set to No the system will not post adjustments.
3. On the commodity released item detail form, the 'Use board price on contracts' in the Commodity fast tab governs if the item should have both board and basis on contracts (if set to Yes) or just net price (if set to No).
4. On Commodity accounting parameters in the Commodities tab, the 'Pricing method' has 2 options: Item price or Bid sheet. When posting inventory, if the ticket is applied to a purchase contract that is not fully priced, the system will look to this parameter to determine where to get the missing pricing components. If set to 'Bid sheet', the system will look for the board price and/or basis depending which is not on the contract. If it is set to 'Item price' the system will use the cost from the commodity on the released item detail form.
5. You can set 'Landed cost' = Yes on discounts and/or fees (Commodity accounting > Setup > Discounts & fees > Discount tables or Fee and charges).
6. Contract type: Basis, Cash, Futures, Minimum price, or Price later.
7. The posting accounts on the commodity released item (Manage costs action pane on the Released item select Posting in the Set up group). If using the inventory model of Standard, the system will use the 'Purchase price variance' on the Standard cost variance tab which will offset to the 'Inventory expenditure, profit' on the Inventory tab when the settlement is confirmed. This is also the place where the inventory adjustment pulls the posting accounts from when the ticket is applied to the purchase contract. For an increase in inventory, it will use the ''Inventory expenditure, profit'' and offset with 'Inventory receipt'. When posting the shrink (negative inventory) it will use the 'Inventory expenditure, loss' and offset with 'Inventory issue'. All of which can be found on the Inventory tab.

The system will "true-up" any differences in cost using the contract price or landed costs when the settlement is confirmed. So, if tickets are applied and unapplied to contracts before they are settled, the system will use that first contract price as the cost and won't make the adjustments to inventory cost until the ticket is settled. This reduces the postings and adjustments to inventory when the settlement price is final. It will also back out the adjustments if the settlement is voided.

Let's walk through scenarios and see how all this fits together. The system will run the same process if the inventory model is FIFO or Weighted average. But we will look at them in multiple scenarios with different settings. All of these scenarios assume 'Perpetual inventory' = Yes on the commodity.

Scenario 1: FIFO with Cash Contract

Commodity item is corn (so the 'Use board price on contracts' = Yes) using FIFO. It will be for a cash contract so the 'Pricing method' on commodity parameters does not impact the processing. None of the discounts or fees are set for landed cost. The purchase contract has board price = $7.625 and basis = -0.15 for a net price of 7.475. When the inbound ticket with a gross quantity of 1000 bushels is applied to the purchase contract, it will post an inventory adjustment for the full 1000 bushels at 7.475 (this happens regardless of how much of the ticket quantity is applied to the contract). Since it is an increase in inventory, that posting will post $7475 credit to the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'. This ticket also has shrink which posts a negative inventory adjustment for the shrink at the 7.475 cost which will use the 'Inventory expenditure, loss' account for the debit and credit offset to 'Inventory issue' on the item posting setup in the Inventory tab.

> Inventory adjustment when applying tickets to contracts
> Debit: 'Inventory receipt' – such as Corn inventory 1400 account
> Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account
>
> Inventory adjustment for shrink
> Debit: 'Inventory expenditure, loss' – typically use the same account as the 'Inventory expenditure, profit' like the Corn payable 2250 account
> Credit: 'Inventory issue' – typically use the same account as the 'Inventory receipt' like the Corn inventory 1400 account.

If you were to print the Delivered not settled report (Commodity accounting > Inquiries and reports > Inbound) the contract price and posted amount would have a difference of 0 since it was posted at the contract price.

If you unapply the ticket from the contract now, the system would add back the shrink adjustment by posting a positive inventory adjustment for the shrink at the same cost it posted originally which was 7.475. This will result in a debit to the 'Inventory receipt' account and credit to the 'Inventory expenditure, profit' which are both defined on the item posting setup under inventory.

If you were to print the Delivered not settled report now, the contract price would be zero and the posted amount would be the same as it was originally so there would be a difference between the two.

If the ticket was applied to a different purchase contract that has board price = 6.00 and basis = -0.25. The system posts an inventory adjustment for the shrink again using the **same** cost as the original contract which was 7.475.
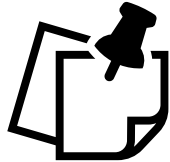
Keep in mind the system will not "true-up" the cost posted to inventory until the ticket settlement is confirmed. The cost used until that point will be the original cost when the ticket was first applied to the contract.

If you printed the Delivered not settled report now, there would be a negative difference in the posted price from the current contract price. In this case it would be -1725 since the original cost posted was 7.475 and the current contracted net price is 5.75.

Now create a settlement for the full ticket quantity and confirm it on the settlement payment form. The system now will "true-up" the inventory cost. It will make a transaction adjustment to the original inventory adjustment of -1725. You can see this if you go to the released item (Product information management > Products > Released products) and select your commodity. In the action pane click Manage costs tab and Transactions in the Cost transactions group. Here you can see the original inventory adjustment posted for 1000 at 7.475 for a total of 7475. In the Adjustment column it will show a -1725 which is the difference between the original cost to the settled price for that 1000 bushels.

The system posts a debit to the 'Inventory expenditure, profit' (Corn payable 2250) and a credit to the 'Inventory receipt' (Corn inventory 1400) adjusting the original accounts that the system posted the inventory adjustment to when the ticket was first applied to a contract.

To round out the process, with the confirmed settlement, the system creates and posts a vendor invoice journal for the vendor account. Each discount and fee will be split out and the offset accounts for those lines will pull from the discount and fee setup from the inbound settlement main account. And the offset for the gross credit pulls from the item posting setup under the Purchase order tab, the account selected for the Purchase expenditure for expense which should be the Corn payable 2250.

Scenario 2: Weighted Average with Price Later Contract

Commodity item is soybeans (so the 'Use board price on contracts' = Yes) using Weighted average. It will be for a price later contract so the 'Pricing method' on commodity parameters tells us what price it should use for the original inventory adjustment cost. In this case we will set it to 'Bid sheet', and the board price for soybeans is 16.8125 and basis for that branch is -0.35. None of the discounts or fees are set for landed cost. The price later purchase contract has 200 bushel remaining on the contract. The inbound ticket is for 1200 bushels with no shrink, discounts, or fees. You apply the ticket to the

remaining quantity on the contract of 200 bushel and leaves 1000 bushel not applied to contract. The system will post an inventory adjustment for the **full** 1200 bushels at 16.4625. Since it is an increase in inventory, that posting will post $19,755 credit to the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'.

> Inventory adjustment when applying tickets to contracts
> Debit: 'Inventory receipt' – such as Corn inventory 1400 account
> Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account

Keep in mind the system posts the **full** gross ticket quantity to inventory the first time the ticket is applied to a contract even if there are remaining quantity on the ticket.

If you were to print the Delivered not settled report (Commodity accounting > Inquiries and reports > Inbound) there would be 2 lines for this ticket. The first for 200 bushel at the contract price (which is still zero since it is a price later contract) at the posted amount which would result in a difference. The second line would be for 1000 bushel again at no contract price since it is not applied to a contract yet and the difference is the posted cost.

In the inbound ticket application form, select the remaining 1000 bushel and create a new contract using the current board of 16.8125 and basis of -0.35. Apply the remaining ticket quantity to the new contract.

If you were to print the Delivered not settled report now, the original 200 bushel to the price later contract would still have a difference, but the 1000 bushel should not since it used the current board and basis that was used on the posting.

The grower decides to price that 200 bushel a few days later when the board has increased to 16.95 and the basis is still -0.35. If you print the Delivered not settled report now, the 200 bushel will show a positive difference of 27.50.

Create the settlement for the full 1200 bushels and confirm it. The Delivered not settled report will no longer display the ticket since it is fully confirmed. Upon the confirmation, the system posts a credit to 'Inventory expenditure, profit' (Corn payable 2250) and debit to 'Inventory receipt' (Corn inventory 1400) since the cost was higher on settlement than was used on the original posting using the bid sheet.

Scenario 3: FIFO with Basis Contract and Landed Discounts and Fees

Commodity item is corn (so the 'Use board price on contracts' = Yes) using FIFO. It will be for a basis contract so the 'Pricing method' on commodity parameters tells us what to use for the missing board price which is currently 7.625. The landed discounts are for foreign material and test weight, and landed

fee of a weigh charge. The basis purchase contract has basis = -0.15. When the inbound ticket with a gross quantity of 1000 bushels is applied to the purchase contract, it will post an inventory adjustment for the full 1000 bushels at 7.475. Since it is an increase in inventory, that posting will post $7475 credit to the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'. This ticket also has shrink which posts a negative inventory adjustment for the shrink at the 7.475 cost which will use the 'Inventory expenditure, loss' account for the debit and credit offset to 'Inventory issue' on the item posting setup in the Inventory tab. The foreign material discount is 5.25, test weight of 3.25, and weigh charge of 20.

> Inventory adjustment when applying tickets to contracts
> Debit: 'Inventory receipt' – such as Corn inventory 1400 account
> Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account
>
> Inventory adjustment for shrink
> Debit: 'Inventory expenditure, loss' – typically use the same account as the 'Inventory expenditure, profit' like the Corn payable 2250 account
> Credit: 'Inventory issue' – typically use the same account as the 'Inventory receipt' like the Corn inventory 1400 account.

Keep in mind the system will "true-up" the inventory with the landed costs when the ticket is settled just like it does with any contract price differences.

If you were to print the Delivered not settled report (Commodity accounting > Inquiries and reports > Inbound) the contract price and posted amount would have a negative difference since the contract does not yet have a price only a basis.

Now create a settlement for the full ticket quantity with the board price of 7.625 and confirm it on the settlement payment form. The system now will "true-up" the inventory cost for the landed discounts and fees. It will make a transaction adjustment to the original inventory adjustment of -28.50. From this point on the same processes are done for posting to update the accounts for the landed costs.

Scenario 4: Moving Average with Cash Contract

Commodity item is corn (so the 'Use board price on contracts' = Yes) using Moving average inventory model. It will be for basis contracts so the 'Pricing method' on commodity parameters does not impact the processing. None of the discounts or fees are set for landed cost. The purchase contract has board price = $7.2435 and basis = -0.35 for a net price of 6.8935. When the inbound ticket with a gross quantity of 1000 bushels is applied to the purchase contract, it will post an inventory adjustment for the full 1000 bushels at 6.8935. Since it is an increase in inventory, that posting will post $6893.50 credit to

the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'. This ticket also has shrink which posts a negative inventory adjustment for the shrink at the 6.8935 cost which will use the 'Inventory expenditure, loss' account for the debit and credit offset to 'Inventory issue' on the item posting setup in the Inventory tab.

> Inventory adjustment when applying tickets to contracts
> Debit: 'Inventory receipt' – such as Corn inventory 1400 account
> Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account
>
> Inventory adjustment for shrink
> Debit: 'Inventory expenditure, loss' – typically use the same account as the 'Inventory expenditure, profit' like the Corn payable 2250 account
> Credit: 'Inventory issue' – typically use the same account as the 'Inventory receipt' like the Corn inventory 1400 account.

The grower decides to use another cash purchase contract for this ticket which has a net price of 7.75. So, the ticket is unapplied from the first contract and applied to the other contract.

Keep in mind the system will "true-up" inventory when the ticket is settled not as contracts are applied and unapplied to tickets. Only the first contract application will the system post the inventory adjustment for the full gross ticket quantity.

Create a settlement request for half the ticket quantity. When this settlement is confirmed, the system will post a **negative** inventory adjustment for 1000 bushel at the original cost of 6.8935. Then post a **positive** inventory adjustment for the 1000 bushel at the confirmed settlement price of 7.75. The system will use the same posting accounts as the first posting.

Scenario 5: Moving Average with Item Pricing Method

Commodity item is corn (so the 'Use board price on contracts' = Yes) using Moving average inventory model. It will be for price later contracts so the 'Pricing method' set to 'Item' will be used when posting. In this case the cost on the item in the Manage costs fast tab is $8.00. None of the discounts or fees are set for landed cost. When the inbound ticket with a gross quantity of 1000 bushels is applied to the purchase contract, it will post an inventory adjustment for the full 1000 bushels at 8. Since it is an increase in inventory, that posting will post $8000 credit to the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'. This ticket also has shrink which posts a negative inventory adjustment for the shrink at the 8 cost which will use the 'Inventory expenditure, loss' account for the debit and credit offset to 'Inventory issue' on the item posting setup in the Inventory tab.

> Inventory adjustment when applying tickets to contracts
> Debit: 'Inventory receipt' – such as Corn inventory 1400 account

Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account

<u>Inventory adjustment for shrink</u>
Debit: 'Inventory expenditure, loss' – typically use the same account as the 'Inventory expenditure, profit' like the Corn payable 2250 account
Credit: 'Inventory issue' – typically use the same account as the 'Inventory receipt' like the Corn inventory 1400 account.

If you were to view the Delivered not settled information, the contract price would be 0 and the posted amount would be 8000 with a -8000 difference.

Create a settlement request for the full ticket quantity at board = 7.2435 and basis = -0.35. When this settlement is confirmed, the system will post a **negative** inventory adjustment for 1000 bushel at the original cost of 8. Then post a **positive** inventory adjustment for the 1000 bushel at the confirmed settlement price of 6.8935. The system will use the same posting accounts as the first posting.

Scenario 6: Standard with Cash Contract

Commodity item is corn (so the 'Use board price on contracts' = Yes) using Standard inventory model. It will be for cash contracts and since it is standard cost, the pricing method on commodity parameters does not matter. The standard cost posted on the Item price form of the site is $10. Some of the discounts or fees are set for landed cost. The purchase contract has board price = $7.2435 and basis = -0.35 for a net price of 6.8935. When the inbound ticket with a gross quantity of 1000 bushels is applied to the purchase contract, it will post an inventory adjustment for the full 1000 bushels at the standard price of 10. Since it is an increase in inventory, that posting will post $10,000 credit to the account defined in the item posting setup in the Inventory tab for 'Inventory expenditure, profit' and the debit offset will be pulled from the 'Inventory receipt'. This ticket also has shrink which posts a negative inventory adjustment for the shrink at the 10 cost which will use the 'Inventory expenditure, loss' account for the debit and credit offset to 'Inventory issue' on the item posting setup in the Inventory tab.

<u>Inventory adjustment when applying tickets to contracts</u>
Debit: 'Inventory receipt' – such as Corn inventory 1400 account
Credit: 'Inventory expenditure, profit' – such as Corn payable 2250 account

<u>Inventory adjustment for shrink</u>
Debit: 'Inventory expenditure, loss' – typically use the same account as the 'Inventory expenditure, profit' like the Corn payable 2250 account
Credit: 'Inventory issue' – typically use the same account as the 'Inventory receipt' like the Corn inventory 1400 account.

Keep in mind the process for items using standard inventory model is slightly different in Microsoft Dynamics 365 from the other inventory model options. You must have active prices posted for each site. You can read more about standard cost in Microsoft documentation: Prerequisites for standard cost overview.

Create a settlement request for half the ticket quantity which also takes half the discounts and fees. The landed discounts are for test weight of 2.50 and foreign material of 2.10. When this settlement is confirmed, the system will post a transaction to general ledger using the Purchase price variance account on the item posting form in the Standard cost variance tab for the difference and offset to the 'Inventory expenditure, profit' account. It will take the landed discounts and fees plus the difference in the standard cost to the contract net price. If the contract net price less landed discounts and fees is **more** than the original posted cost (like it is in this example) the system will post a credit of 1207.85 to the 'Inventory expenditure, profit' account (Corn payable 2250) and debit the Purchase price variance account (COGS price variance 5005). The 1548.65 is a total of the standard cost less the contract net price multiplied by the quantity and less landed discounts and fees. ((10 - 6.8935) * 500) - 2.50 – 2.10 = 1548.65

If the contract net price less landed discounts and fees is **less** than the original posted cost the system will post a credit to the Purchase price variance account (COGS price variance 5005) and debit to the 'Inventory expenditure, profit' account (Corn payable 2250).

Scenario 7: Non-Board Commodities

Commodity item has 'Use board price on contracts' = No and using any one of the supported inventory model. The difference in these commodities is the contract has only a net price rather than a board and basis. Otherwise, the processes, posting and end results are the same in the above scenarios.

Summary

Levridge commodity accounting processes differently depending on the inventory model when using perpetual inventory but all occur when the ticket has a confirmed settlement:
FIFO and Weighted average: an adjustment to the inventory transaction is posted.
Moving average: the original inventory adjustment is reversed, and a new transaction is posted.
Standard: a general ledger transaction is posted for the difference.