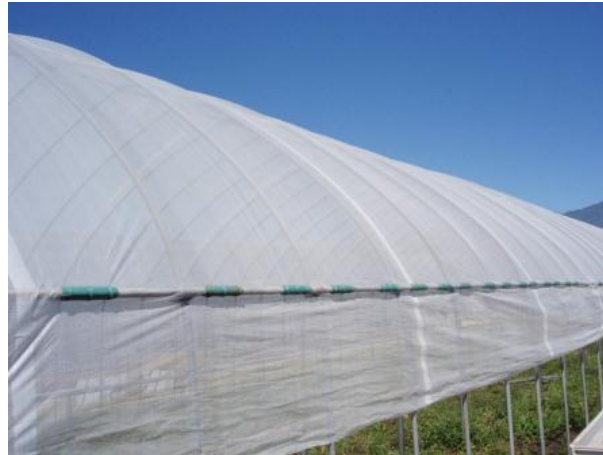


# Agricultural Heat Shielding Material without Blocking Visible Light

## MEIRYO

- Characteristic
- Property



 **JX Nippon Oil & Energy**



# Characteristics of MEIRYO

- Added special additive → **Bright but cool**
  - i. Reflect infrared light to lower greenhouse temperatures without blocking the sunlight which is necessary for optimal growing.
  - ii. Lower UV transmittance.
  - iii. Light shielding ratio is 20%, 30% and 40%.

- Added UV resistant → **Superior durability**
- 40% open area ratio → **Excellent breathability**

- Lightweight but tough → **Easy construction**

For example: 13kg/300sqm (6m × 50m)

- Thermal fusion bonding  
→ **High dimensional stabilities and no joint slides**



# Physical Property of MEIRYO

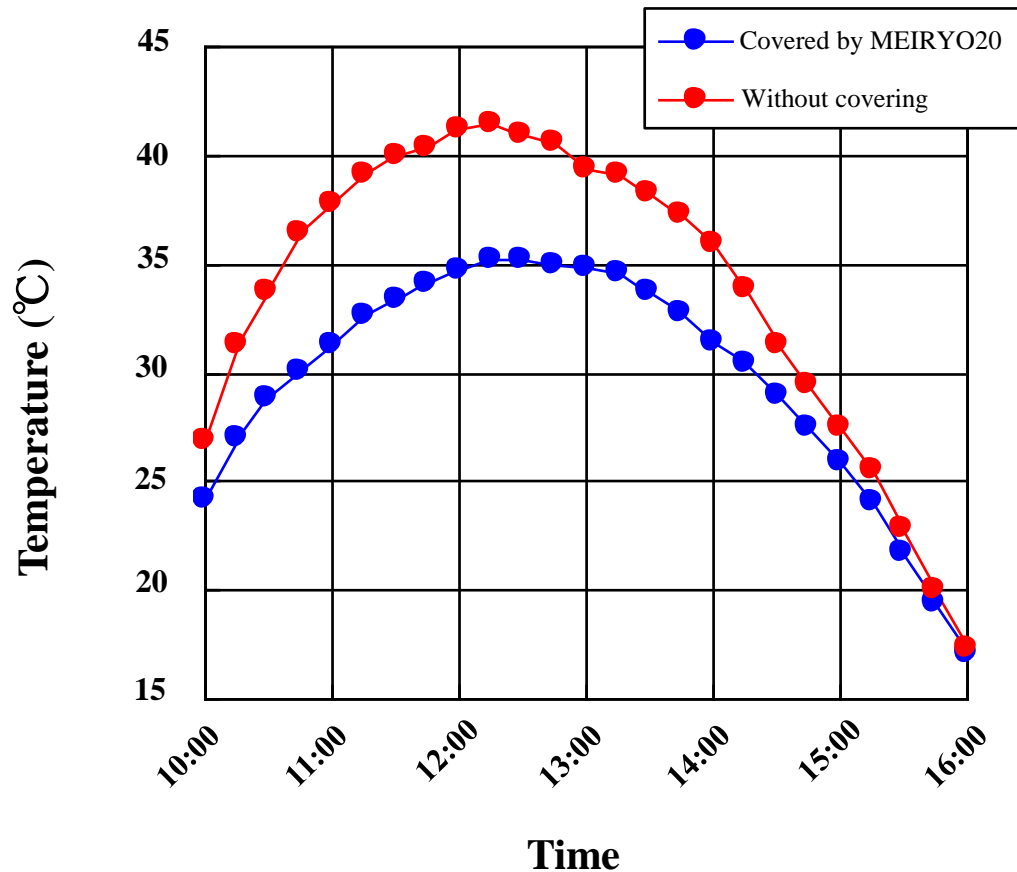
Type	Light Shielding Ratio	Weight (g/m <sup>2</sup> )	Tensile Strength (N/50mm)	
			MD	CD
MEIRYO 20	20% ~ 25%	37 ≦	190 ≦	230 ≦
MEIRYO 30	30% ~ 35%	40 ≦	210 ≦	250 ≦
MEIRYO 40	40% ~ 45%	44 ≦	200 ≦	220 ≦
MEIRYO 50	45% ~ 50%	54 ≦	230 ≦	250 ≦

# Heat Shielding Property Evaluation 1

## Greenhouse Temperature

### Test method

Compare the temperature between the same two greenhouses, one covered by MEIRYO20 and the other without covering.

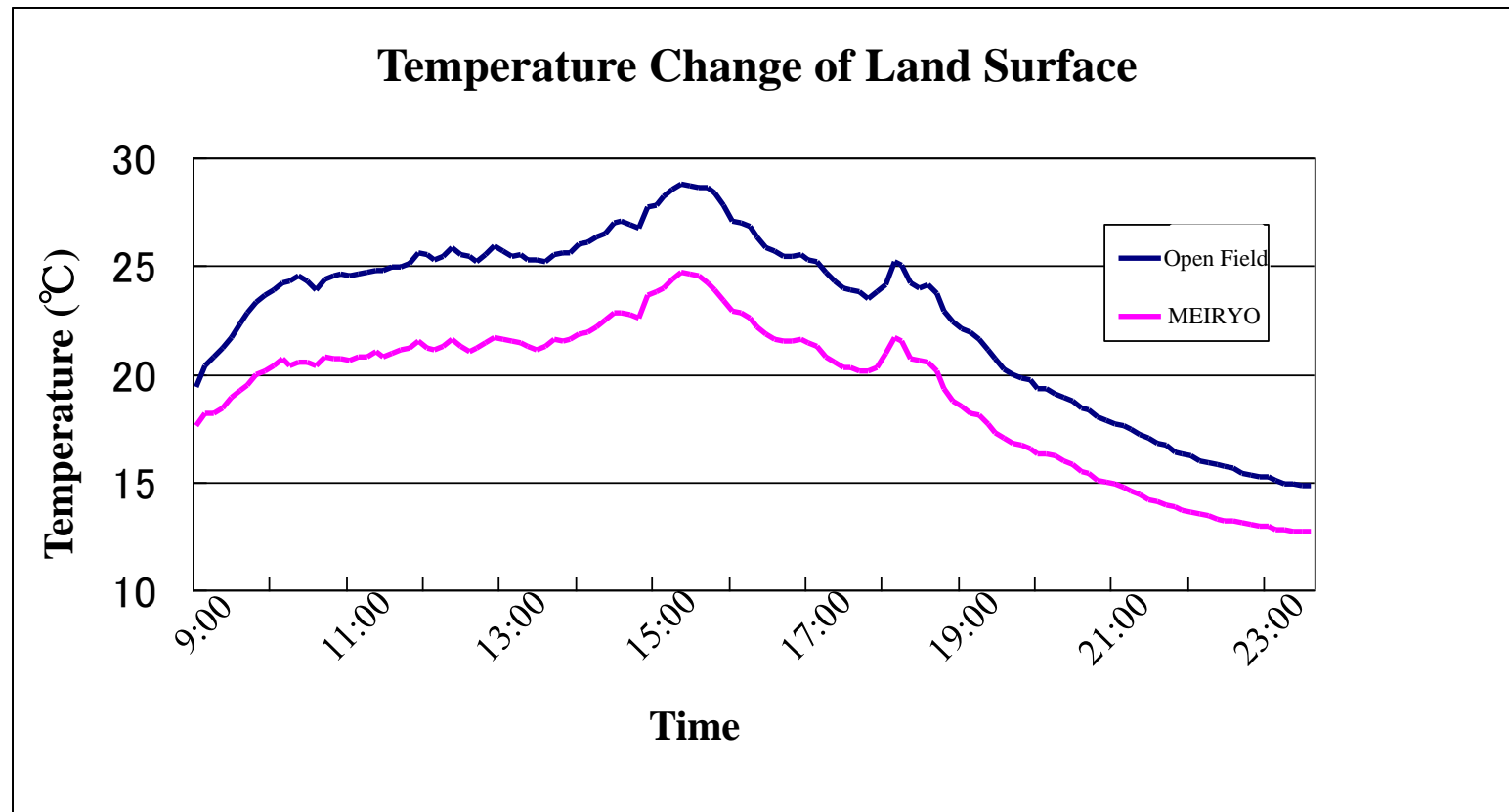


# Heat Shielding Property Evaluation 2

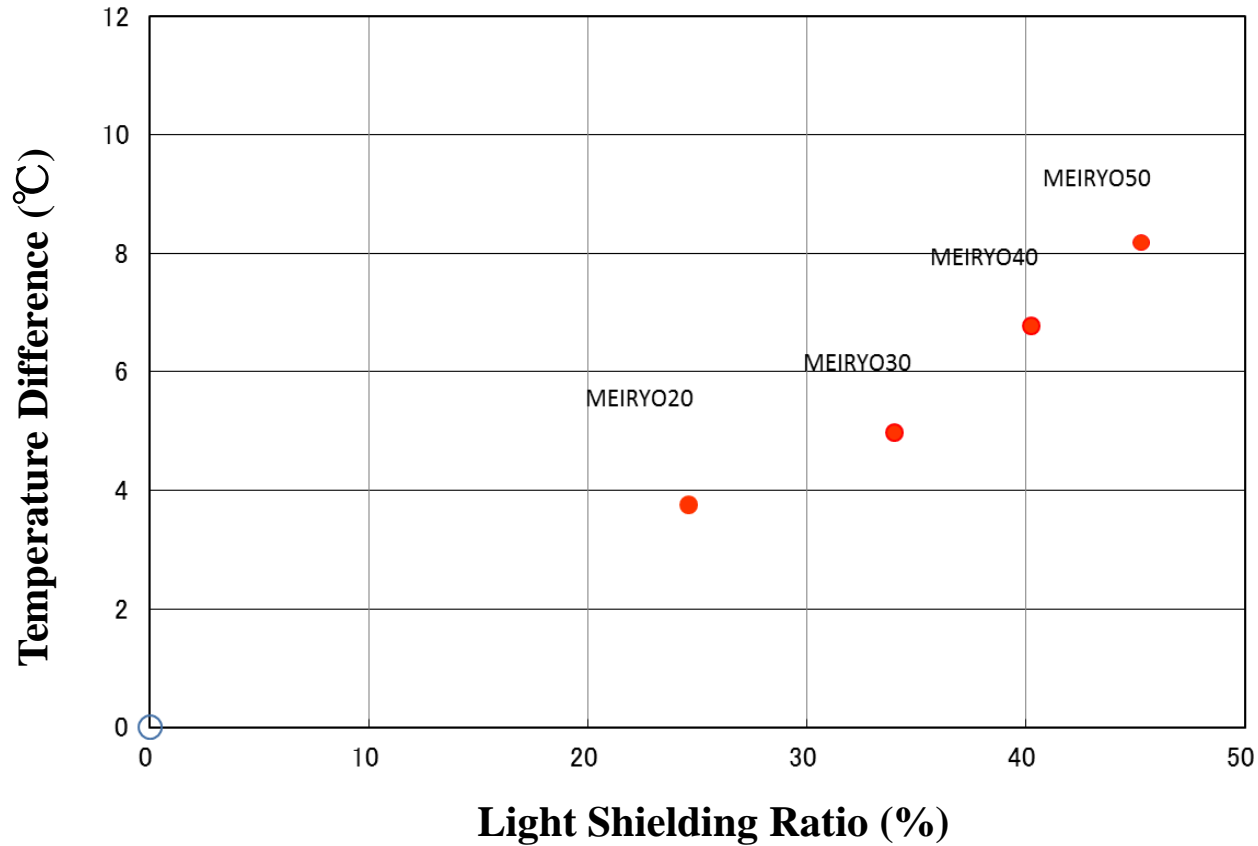
## Ground Temperature

### Test method

Compare the temperature between two places with 1cm depth underground, one covered by MEIRYO20 and the other without covering.

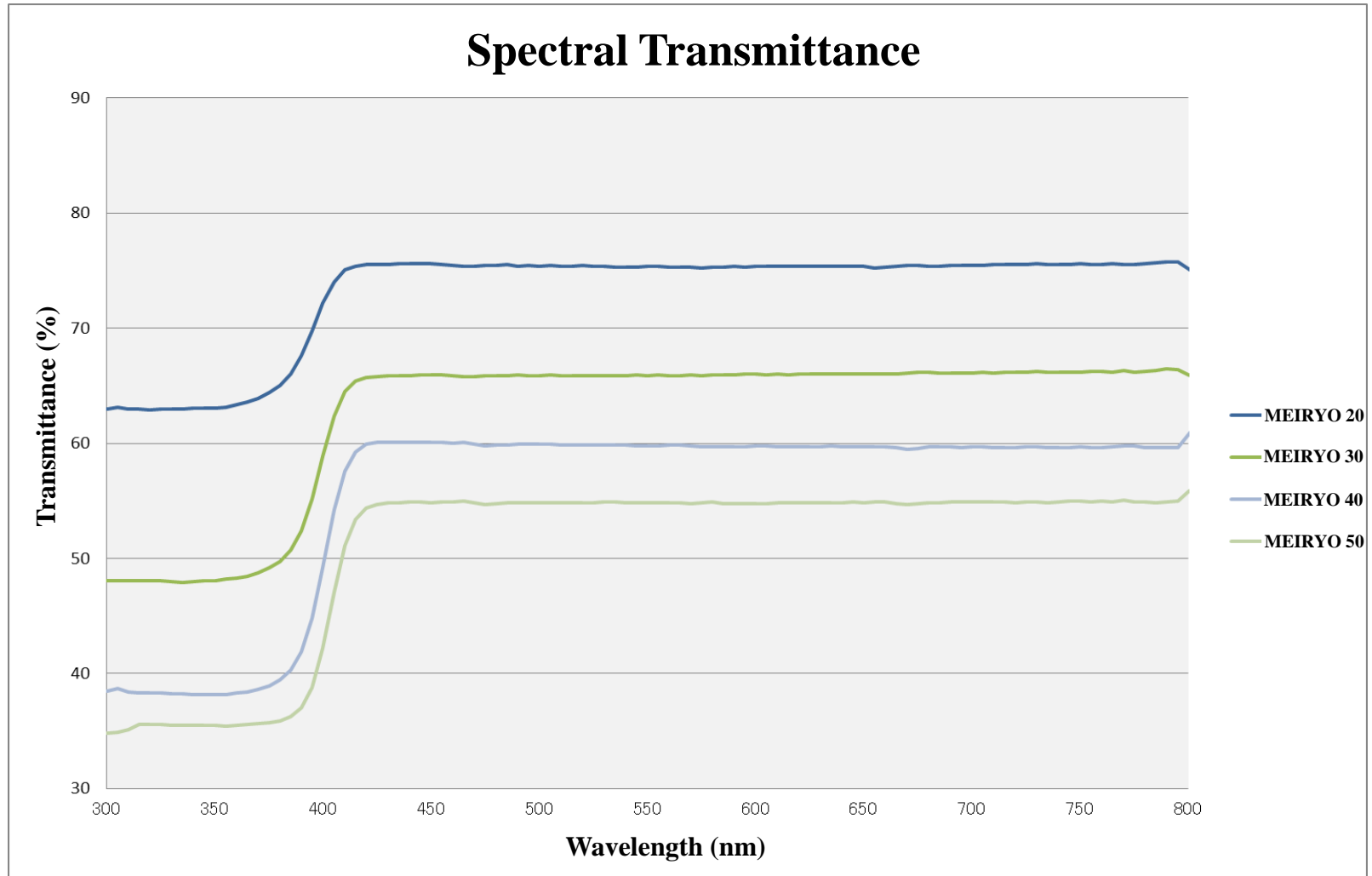


# Heat Shielding Efficiency of Different MEIRYO Grades



# Light Shielding Ratio

(calculated from spectral transmittance)



UV Light : 240 - 400nm    Visible Light : 400 - 800nm

# Field-test

Compare yield and quality of tomatoes cultured under different conditions shown in Table.1.

Table.1

No.	Covering Materials			Covering Time	Illuminance (lux)
	Product	Light Shielding Ratio (%)	Color		
1 (without covering)	-	-	-	-	109000
2	MEIRYO20	20	transparent	all day	77000
3	MEIRYO30	30	transparent	fine weather 9:00-16:00	64000
4	Shielding Net	30-35	silver	fine weather 9:00-16:00	53500

Test period: Jul. - Sep.



# Field-test

Table.2

No.	Yield			
	Product	Number of fruits (* /per plant)	Weight (g/per plant)	Weight (g/per tomato)
1 (without covering)	-	15.9	2532	159
2	MEIRYO20	16.6	2772	167
3	MEIRYO30	18.5	3198	173
4	Shielding Net	17.8	2978	167

According to the data shown in table.2, it indicates the following results.

1. The yield of tomato are affected by light shielding condition.
2. The result of covered by MEIRYO30 is the best of all.

# Processing and Equipment

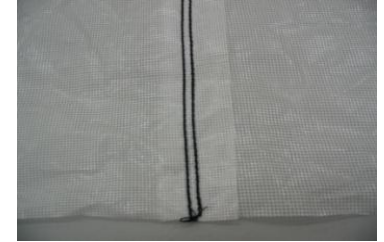
Spreading Machine



Unrolling Machine



Sewing



sealing



Heat Seal Machine



Sewing Machine



Taping



Ringing

