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- **Mycorrhizae**
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The Sun Gro'er *is a newsletter distributed two times yearly for the purpose of communicating horticultural and Sun Gro product information.*

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Re-Aligning Our Professional Brands

I wonder how many of you remember when there were not that many plant types or varieties that you grew for spring sales? Remember how you were asking "What's new for next spring?", "What can I offer my customers that may be new and exciting?" We need new plant types! We need new varieties! We need more! Bring it on, man!

Well now, how many of you can fit all the plant types and varieties you grow on one sheet of paper? I bet you need a book! Let's not even talk about tags… Can't we simplify this?

Well, Sun Gro is in the same position. We have added professional products over the years and it's time to simplify. We set out to use our brands to organize our professional products in a manner to simplify what we have and by virtue of that, help others understand the products Sun Gro offers.

So we came up with a way to use our two common brands to organize our professional products in a way that our customers can understand.

We chose our **SUNSHINE** and **METRO-MIX** brand names to achieve this plan.

Sunshine brand professional products will be products not containing any composted bark or other composts. These are products that contain peat moss and/or coconut coir pith. Our coir products will also show the brand SunCoir.

Metro-Mix brand professional products will be products containing composted bark or other composted materials. Composted materials other than bark may include materials like composted peanut hulls or rice hulls.

Those who know about our product line already can see that some current products will be "re-branded". Take for example our Sunshine bark mixes, like our popular SB300. That product will be re-branded as Metro-Mix.

Or what about the Metro Mixes that do not contain any bark or composted materials? Take our Metro Mix 200 for example. That will be re-branded as Sunshine.

How many varieties of geraniums are you growing this year? And how many did you "used to grow"?

In fact, some products will be consolidated with others, where formulas are similar or even exactly the same.

Take for example, Metro Mix 700 and Sunshine SB300. They will be consolidated. Or what about Metro Mix 702 and Sunshine SB100? Those two will also be consolidated. The resulting product names will be Metro Mix 900 and 902 respectively.

Some products will be eliminated as standard products because of their low popularity.

Tables 2 –5 show the current brand and product name with the intended brand and product name after our re-alignment.

Sun Gro Brand Re-alignment

"....The move for stick on labeling should satisfy what our distributors are needing to be more efficient, and at the same time provide information that is easier to see."

Sun Gro is implementing the use of stick-on labels in order to assure that various information is easier to see for the distributor and the end-use customer

Some final "tweaks" are yet to be made to this scheme.

The realignment of brands will take place on July 1, 2010. This seemed to be a logical segue point since most growers / customers are in-between "seasons" — spring / bedding plants and fall / mums, poinsettias, etc. And typically customers start their purchases of growing media products in the late summer/ early fall that coincide with horticultural/distributor shows. So, it was advised that this timing would be more convenient for our distributor partners as well.

One of the things we have attempted to do is to put formulas in categories, particularly for the Metro-Mix products. This was done knowing that many of the product names are somewhat "entrenched" in the marketplace. We felt compelled to use the ingredients and their relative amounts to segment the lines.

Table 5 shows how we grouped the Metro Mix products. So now we have the following:

Sunshine Series: No bark or compost

SunCoir: Designation for a product containing coconut coir pith.

Metro Mix 300 Series: Products with bark, high amounts of vermiculite and bark ash. Exception is MM380 and MM380 SunCoir

Metro Mix 500 Series: Products with high amounts of bark, high amounts of vermiculite and bark ash.

Metro Mix 800 Series: Products with bark or compost, low or no vermiculite and no bark ash.

Metro Mix 900 Series: Products with bark or compost, high amounts of vermiculite and no bark ash.

Metro Mix PX Series: Products, many of which, contain composted peanut hulls.

Labeling Changes

Together with Brand Realignment, Sun Gro is also implementing the use of stick-on labels together with more generic packaging. This should streamline our packaging purchases and "look" but also be more precise and at the same time more flexible in our labeling.

Our distributors are becoming more organized via computerization. They expect their suppliers to provide them with what they need to be more efficient. Things like item numbers, lot codes, ingredients and even SKU bar codes need to be on our packaging. So we are responding. The move for stick-on labeling should satisfy what our distributors are needing to be more efficient, and at the same time provide information that is easier to see.

All Sun Gro plants should be fully operational with stick-on labeling by mid 2010.

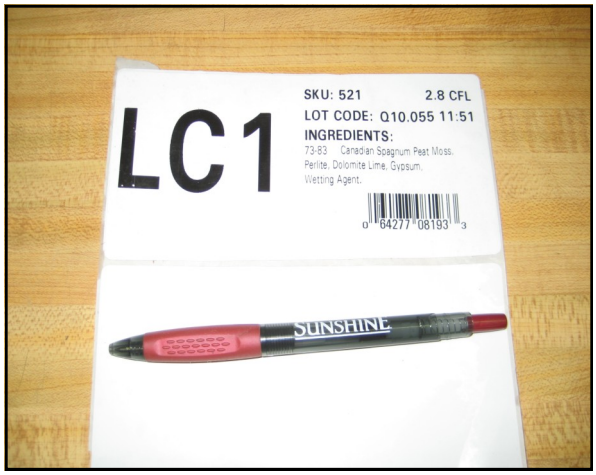
Product Descriptions

When you look at our stick-on labels you will see the use of "short-hand" in naming our products.

We need to do that in order to make the "font" of the names as large as possible. This is geared to assure that the product names are easier to see. For example, instead of seeing Sunshine, you may see "SS" or instead of seeing Metro-Mix or Metro, you will see "MM". On more of the common products you may not see the brand on the stick on label. For example, our Sunshine LC1 will simply be labeled "LC1".

To be sure, our sales force, CRC and technical services will be fully trained on what the plan is moving forward. Our intention is to make sure that our distributors and end-use customers are fully apprised of these improvements in how we market our Sun Gro professional products.

-R.V.



Left— Stick on labels contain the name of the product, SKU/item number, lot code, ingredient statement and UPC bar code. Labels are coated and tolerant to sun and moisture.

Right—Each pallet also has a computer generated pallet placard that has product identification information. In this case for a mini-bulk custom-blend.

It Happened on a Greenhouse visit — The Truth About Soluble Salts

On a greenhouse visit some time ago I asked a new grower, "What fertilizer rate are you using?" To my surprise he replied, "I don't know." I left the greenhouse fairly concerned but after some contemplation decided that perhaps I shouldn't be.

The reason is the fertilizer rate a grower provides to a crop is only one component affecting the crop's nutritional status. Factors such as fertilizer source, leaching fraction, irrigation method and plant development stage can dramatically affect the fertilizer rate that is necessary.

I don't know if this grower had considered these aspects of nutrient management, but it reinforced to me that a crops electrical conductivity (EC) or salt concentration is the important value to know, not the fertilizer rate, when determining if a crop is being fertilizer properly. This value has long been called "soluble salts" and can be used to evaluate the nutrient content of the substrate.

Make no mistake, the fertilizer rate is important to know, but I suggest that you use it as the starting point and test the EC *on a regular basis* to ensure that your crop is receiving the proper amount of nutrients."

Plant Development Stage

Plant development stage dictates the required EC of a mix. And in turn, the plants propensity to take up nutrients dictates the a growing media's EC. See Figure 1. Most plants have a similar growth cycle. Early in a plants life (stage A) most of it's energy and nutrients are dedicated to developing roots so there is little growth above the substrate. Since the plant is not generating a tremendous amount of new stems and leaf tissue, not much fertilizer is needed to fuel growth. So, generally speaking, fertilizer rates do not need to be high. There are a few notable exceptions, like chrysanthemums.

When a plant enters Stage B or the active growth stage, most of the plants energy is directed to stem and leaf growth. During this stage, the plant size or mass increases at a rapid rate. Therefore, more fertilizer is needed to fuel growth during this stage versus stage A.

As a plant reaches stage C, growth begins to slow. The plant is reaching its final size and is directing its "resources" to flower production instead of stem and leaf growth. The flower production stage generally does not require as much energy as the active growth stage.

"...the salt concentration is the important value to know, not the fertilizer rate".

In the flowering stage, the plant can benefit from lower pest and disease pressure as well as increased shelf-life if fertilizer rates are reduced. A few exceptions, such as ornamental cabbage and kale, vegetative petunia and others still require high fertilizer rates to prevent lower leaf yellowing even after flowering has begun.

This is where monitoring EC and determining if the correct amount of fertilizers being delivered is more useful than just knowing the

The Truth About Soluble Salts...

fertilizer rate. Remember that most fertilizer rate recommendations are for Stage B or the active growth stage. In many situations, providing "a recommend fertilizer rate" during stages A and C can cause salt stress that may lead to poor plant development or pest and disease problems as well as a decreased shelf-life.

Optimum EC values

Most growers are aware that different crops need different amounts of fertilizer (i.e. New Guinea impatiens need very little fertilizer compared to vegetative petunias). Even cultivars / varieties within species vary in their need for nutrients. In a fertilizer rate trial at Oklahoma State University, researchers found that several cultivars within a species of vegetative annuals perform better with varying fertilizer rates. Table 1 summarizes each plant type tested with the target PourThru EC value and the fertilizer rate used to achieve the targeted EC value.

To achieve the calibrachoa target PourThru EC of 2 mS/cm, the Superbells 'Trailing Blue' needed 50 to 100 ppm N (using a 21-5-20 fertilizer) less fertilizer than the Superbells 'Pink Kiss'. Similarly, with the petunias, a target EC of 3 mS/cm for Supertunia 'Giant Pink' was achieved by feeding only 150 ppm N, whereas the Supertunia 'Priscilla' took up to 300 ppm N to maintain the targeted EC. Differences were also observed with phlox and Scaevola varieties.

One crop that showed little difference in EC regardless of the fertilizer rate was verbena. Superbena Burgundy EC values were within the target zone with all fertilizer rates used (100 through 300 ppm N). It would be a lot easier to grow plants if more crops responded like Superbena Burgundy. Unfortunately, most do not. You can simplify your product by grouping plants into categories by pH and EC.

Evaluating tap water

Before a crop is ever planted, evaluate the tap water quality. Does the tap water (prior to fertilizer injection) have a high EC value or is it high in a specific nutrient. This will contribute to the EC measured when attempting to evaluate the nutrients/EC of the substrate. At the OSU research greenhouses, the tap water EC ranges from 0.5 to 0.8 mS/cm, which is fairly high.

The OSU fertilizer strategy is to generally feed with a recommended fertilizer rate during the active growth stage, but only use "clear water" on weekends. This clear water irrigation helps to reduce EC values by limiting the overall salt (fertilizer) input. It has been the experience at OSU, that most plants tolerate this system well and no nutrient deficiency symptoms have been observed. However, irrigation water could potentially be a problem for plug production. The low substrate volume in plug cells does not facilitate buffering against rapid changes in nutrient status and so the EC would quickly rise to unacceptable levels.

Irrigation Methods

Another factor to consider is the type of irrigation system. With irrigation systems and fertility, it comes down to leaching fraction. When leaching occurs, salts are flushed out of a container. You can adjust the leaching fraction with hand watering by altering the volume of water or the rate at which you apply it. Depending on the irrigation systems, leaching fractions can be adjusted differently.

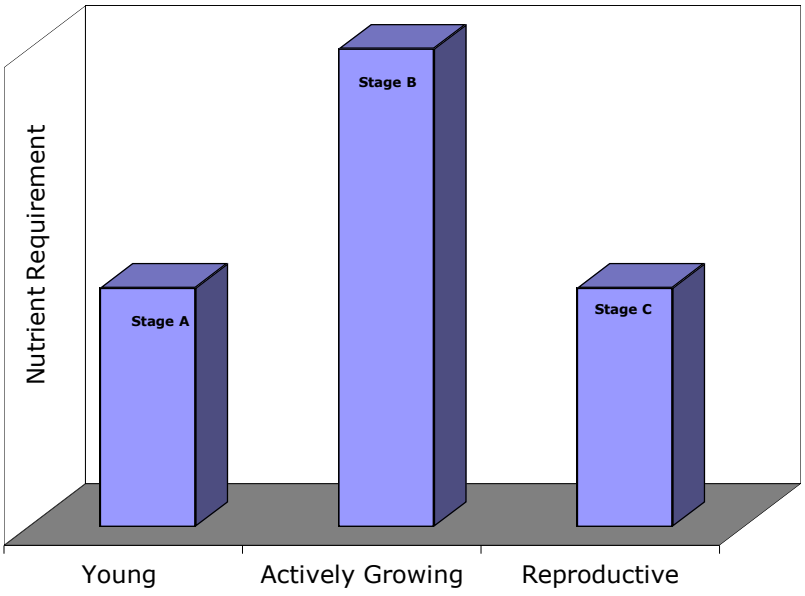


FIGURE 1. Graph showing the relative amount of nutrients, often measured as "soluble salts", needed for proper growth and development of plants.

The Truth About Soluble Salts...

With conventional overhead –hand watering, a large volume of water is applied to containers in a short time period. This large volume all at once has the potential to produce a large leaching fraction through a process known as "bulk head water movement". Research has shown that hand watering can lead to significant leaching fractions.

Drip tubes and pulse irrigation systems provide the same volume of water, but applications are spread out over time. During this longer duration the water/fertilizer gently spreads throughout the substrate. The gentle spreading reduces the impact of the bulk head water movement and can dramatically reduce the leaching fraction.

Subirrigation systems do not facilitate leaching since the water is applied from the bottom of the containers. With no bulk head water movement, the salts move with the capillary water movement ("substrate suction"). Capillary water movement can be in any direction, but water evaporation from the top of the container generally pulls the water and salts up through the substrate. This leads to salt accumulation in the upper one-third of the substrate. As a result of the salt accumulation, fertilizer rates can be decreased (30-50 percent) because a "reservoir" of nutrients develops over time in this top portion.

Most commercially supplied growing media include a lean nutrient charge. While, many growers rely on this charge for as long as they can to save a few dollars, it is a mistake. First, the rates are usually low but provided with the intent to satisfy "nutrient holding" of the mix components so that additional fertilization by the user **is more effective**. It also is added to provide secondary and micronutrients that historically speaking, may not be provided, or is difficult to provide by the grower. Secondly, most nutrients are water soluble and leach out quickly, especially if hand watering is employed.

The simple answer is to assure that fertilization is employed soon after planting to reach the targeted EC value for that stage growth. True, thinking back now, setting the "fertilizer rate" may be "adequate", but growers can improve results and efficiency significantly by measuring targeted medium EC values.

It may take a little adjusting to get the targeted values correct, but once you're there you'll be glad you did it.

To get an understanding on how to conduct the PourThru method visit www.PourThruinfo.com. ***—T.C.***

Editor's Note: Article is adapted from "Target the EC" originally published in GPN in March of 2004.

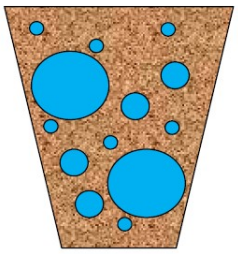
A Perlite Primer - The Big White Stuff

Large, coarse perlite alone may not be the best for a peat based growing medium. In general, a mix of sizes is desirable to provide uniformly distributed air spaces and to avoid the negative aspects of the "sand & rocks" effect—or in this case the "peat and rocks" effect (and the resultant increased bulk density of the mix).

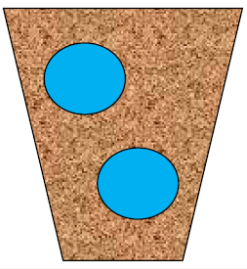
How does "sand and rocks" relate to a growing medium? You've probably seen the demonstration (often used in time management presentations). You have a jar that holds only so many large rocks, but you can add medium sized rocks (gravel) in the larger spaces and sand in the small places.

The naturally occurring various sizes of perlite provide a great deal of air space. Sun Gro specifies perlite ore used and at times screens the ore to achieve a desirable range in particle sizes.

Now let's talk about blends. Multi-sized perlite in a growing mix at 30% perlite will provide a fairly uniform distribution of air spaces, desirable for good root growth.



If you use only large perlite in your 30% perlite mix, the mix will contain fewer perlite pieces.



The remainder is peat moss which is heavier than perlite (greater bulk density) which makes the bags/pallets heavier and fewer pallets per truckload. This is the negative "sand and rocks" effect.

Will the mixes perform differently? Maybe, maybe not, depending upon the growing methods and crops grown.

Growing wise, the mix with large perlite will have less air capacity provided by large perlite than mix made with multi-sized perlite and the air spaces wouldn't be as uniformly distributed.

So the next time you think that having big perlite is better, remember that well distributed air capacity from multi-sized perlite is just as good and probably better than just the big white stuff.

-K.L.

Table 1. Vegetative annuals, optimum EC values and the fertilizer rates necessary to sustain the optimum EC values [Z]

Crop	Recommended PourThru EC (mS/cm)[Y]	Fertilizer rate (ppm N) needed to obtain optimum EC values [Z]
Bidens 'Solar Compact Yellow'	1.8 – 2.7	100
Bracteantha 'Sundaze Golden Beauty'	1.8 – 2.7	150
Bracteantha 'Sundaze Golden Yellow'	1.8 – 2.7	150
Calibrachoa 'Superbells Trailing Blue'	1.8 – 2.7	150 - 200
Calibrachoa 'Superbells Pink Kiss'	1.8 – 2.7	200- 250
Gypsophila 'Festival Star'	1.8 – 2.7[X]	200
Nemesia 'Sunsatia Peach'	1.8 – 2.7	150 - 200
Nemesia 'Sunsatia Pineapple'	1.8 – 2.7	150 - 200
Pelargonium 'Fireworks Cherry Bicolor'	1.8 – 2.7	100 - 200
Petunia 'Supertunia Giant Pink'	2.4 – 3.6	150 - 200
Petunia 'Supertunia Priscilla'	2.4 – 3.6	200 – 300
Phlox 'Intensia Lilac Glow'	1.2 – 2.6[X]	100 – 150
Phlox 'Intensia Neon Pink'	1.2 – 2.6[X]	100
Scaevola 'Whirlwind White'	1.8 – 2.7	150 – 200
Scaevola 'New Wonder	1.8 – 2.7	200 – 250
Torenia 'Summer Wave Blue'	1.8 – 2.7	100 – 150
Verbena 'Superbena Burgundy'	1.8 – 2.7	100 - 300

[Z] Production parameters: 21-5-20 fertilizer, tap water EC was 0.7 mS/cm, alkalinity was 90 ppm $CaCO_3$ equivalent and pH was 7.0

[Y] Electrical conductivity recommended by the plant supplier

[X] No EC value provided by plant supplier. Recommended values based upon trial results.

Table 2. Sun Gro Professional Growing Media Products - Brand / product names before and after Brand Re-Alignment. Items highlighted in green have not been changed.

	CURRENT BRANDING		NEW BRANDING	
	BRAND	**NAME**	**BRAND**	**NAME**
ORIGINAL SUNSHINE— PEAT BASED	SUNSHINE	1	SUNSHINE	1
	SUNSHINE	2	SUNSHINE	2
	SUNSHINE	3	SUNSHINE	3
	SUNSHINE	4	SUNSHINE	4
	SUNSHINE	5	SUNSHINE	5
	SUNSHINE	6	SUNSHINE	6
	SUNSHINE	7	SUNSHINE	7
	SUNSHINE	8	SUNSHINE	8
	SUNSHINE	LC1	SUNSHINE	LC1
	SUNSHINE	LB2	SUNSHINE	LB2
	SUNSHINE	LG3	SUNSHINE	LG3
	SUNSHINE	LA4	SUNSHINE	LA4
	SUNSHINE	LP5	SUNSHINE	LP5
	SUNSHINE	LPM6	SUNSHINE	LPM6
	SUNSHINE	LGP7	SUNSHINE	LGP7
	SUNSHINE	LC8	SUNSHINE	LC8
	SUNSHINE	EUROBLEND	SUNSHINE	EUROBLEND
	SUNSHINE	EUROBLEND PLUG	SUNSHINE	EUROBLEND PLUG
	SUNSHINE	LT5	SUNSHINE	LT5
ORIGINAL SUNSHINE BARK BASED	SUNSHINE	SB100	METRO MIX	902
	SUNSHINE	SB200	METRO MIX	820
	SUNSHINE	SB30	METRO MIX	832
	SUNSHINE	SB300	METRO MIX	900
	SUNSHINE	SB350	METRO MIX	830
	SUNSHINE	SB400	METRO MIX	840
	SUNSHINE	SB500	METRO MIX	950
	SUNSHINE	SB650	METRO MIX	865
WESTERN REGION	SUNSHINE	GROWERS C	METRO MIX	820PC
	SUNSHINE	SB35	METRO MIX	835PC
	SUNSHINE	SB40	METRO MIX	840PC
	SUNSHINE	SB50	METRO MIX	850PC
	SUNSHINE	COIR 1 (SC1)	SUNSHINE	SC1 SUNCOIR
	SUNSHINE	GROWER'S BEST	SUNSHINE	GB
	SUNSHINE	GROWER'S A	SUNSHINE	LA4 P
	SUNSHINE	SS GH MIX #80	METRO MIX	838

Table 3. Sun Gro Professional Growing Media Products - Brand / product names before and after Brand Re-Alignment. Items highlighted in green have not been changed.

	CURRENT BRANDING		NEW BRANDING	
	BRAND	**NAME**	**BRAND**	**NAME**
EASTERN REGION SPECIFIC	SUNSHINE	PX1	METRO MIX	PX1
	SUNSHINE	PX2	METRO MIX	PX2
	SUNSHINE	PX3	METRO MIX	PX3
	SUNSHINE	360	METRO MIX	PX360
	SUNSHINE	300H	METRO MIX	PX300
	SUNSHINE	SB400P	METRO MIX	340P
	SUNSHINE	GBX	METRO MIX	GBX
	SUNSHINE	MUM	DISCONTINUED	**USE METRO MIX HPM**
	SUNSHINE	HPM MUM	METRO MIX	HPM
ORIGINAL 900 SERIES	SUNSHINE	910	METRO MIX	910
	SUNSHINE	935	DISCONTINUED	**USE METRO MIX 366**
	SUNSHINE	950	DISCONTINUED	**USE SUNSHINE VP**
	SUNSHINE	960	METRO MIX	960
	SUNSHINE	980	DISCONTINUED	**USE METRO MIX 380**
ORIGINAL METRO-MIXES	METRO MIX	200	SUNSHINE	MVP
	METRO MIX	250	SUNSHINE	VP
	METRO MIX	280	METRO MIX	820
	METRO MIX	300	METRO MIX	300
	METRO MIX	350	METRO MIX	350
	METRO MIX	360	METRO MIX	360
	METRO MIX	360 COIR	METRO MIX	360 SUNCOIR
	METRO MIX	366	METRO MIX	366
	METRO MIX	366 COIR	DISCONTINUED	**USE METRO MIX 366P SUNCOIR**
	METRO MIX	366P	METRO MIX	366P SUNCOIR
	METRO MIX	380	METRO MIX	380
	METRO MIX	380 COIR	METRO MIX	380 SUNCOIR
	METRO MIX	390 COIR	SUNSHINE	LC1 SUNCOIR
	METRO MIX	400	METRO MIX	340
	METRO MIX	470 COIR	DISCONTINUED	**USE METRO MIX 366P OR 380 SUNCOIR**
	METRO MIX	500	DISCONTINUED	METRO MIX 510 LL
	METRO MIX	510	METRO MIX	510
	METRO MIX	560 COIR	METRO MIX	560 SUNCOIR
	METRO MIX	700	METRO MIX	900
	METRO MIX	700 COIR	DISCONTINUED	**USE METRO MIX 560 SUNCOIR**
	METRO MIX	702	METRO MIX	902
	METRO MIX	702 COIR	DISCONTINUED	**USE METRO MIX 560 SUNCOIR**
	METRO MIX	852	METRO MIX	852
	METRO MIX	841	METRO MIX	841

Table 4. Sun Gro Professional Growing Media Products - Brand / product names before and after Brand Re-Alignment. Items highlighted in green have not been changed.

	CURRENT BRANDING		NEW BRANDING	
ORIGINAL METRO MIX AG MIXES, BEDDING/PERENNIAL MIXES & REDI-EARTH & COIR	**BRAND**	**NAME**	**BRAND**	**NAME**
	METRO MIX	AG LITE	SUNSHINE	AG-LITE
	METRO MIX	AG LITE COIR	DISCONTINUED	**USE REDI-EARTH COIR**
	METRO MIX	BEDDING I	DISCONTINUED	**USE METRO MIX 852**
	METRO MIX	BEDDING II	DISCONTINUED	**USE METRO MIX 830**
	METRO MIX	PERENNIAL I	DISCONTINUED	**USE METRO MIX 865**
	METRO MIX	PERENNIAL II	METRO MIX	855
	METRO MIX	PERENNIAL IV	DISCONTINUED	**USE METRO MIX PX 2**
	METRO MIX	PERENNIAL V	DISCONTINUED	**USE METRO MIX PX 2**
	REDI EARTH	PLUG AND SEEDLING	SUNSHINE	REDI EARTH
	REDI EARTH	P & S 2X	DISCONTINUED	CUSTOMBLEND
	REDI EARTH	PERLITE PLUG	DISCONTINUED	CUSTOMBLEND
	REDI EARTH	COIR	SUNSHINE	REDI EARTH SUNCOIR
	COIR		SUNCOIR	BRICKS
	COIR		SUNCOIR	EXPANDED LOOSE

Table 5. Sun Gro Professional Growing Media Products — Metro Mix Group

300 series	500 series	800 series	900 series	PX series
Metro-Mixes typically containing bark ash and high levels of vermiculite. Exception is 380	**Metro-Mixes containing higher bark, bark ash and vermiculite**	**Metro-Mixes containing no bark ash and minimal or no vermiculite**	**Metro-Mixes containing no bark ash and higher levels of vermiculite**	**Metro-Mixes may contain composted peanut hulls**
300	**510**	**820**	**900**	**GBX**
340	**510LL**	**820PC**	**902**	**HPM**
340P	**560 SUNCOIR**	**830**	**910**	**PX1**
350		**832**	**950**	**PX2**
360		**835PC**	**960**	**PX3**
366		**838**	**960 SUNCOIR**	**PX300**
380		**840**		**PX360**
360 SUNCOIR		**840PC**		
366P SUNCOIR		**841**		
380 SUNCOIR		**850PC**		
		852		
		855		
		865		